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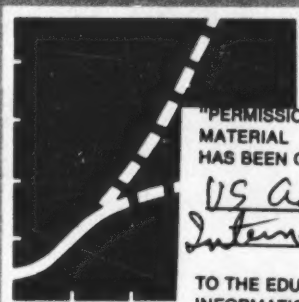
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ABSTRACT

An overview of and rationale for population education for elementary and secondary schools are given beginning with a definition of population education as an effort to teach children about basic population issues and to encourage them to have smaller families. Various aspects and concerns related to the selection and implementation of population education programs are discussed under these broad topics: (1) general planning, including feasibility of programs; (2) administration and coordination of selected programs; (3) curriculum planning; (4) teacher training; (5) instructional materials; (6) program and student evaluation; and (7) impact on students. Recommendations for improving population education programs related to these six areas are listed. Characteristics of established population education programs in different countries are outlined including descriptions of programs in the Philippines, Korea, United States (Baltimore, Maryland), Egypt, Sierra Leone, India). An extensive bibliography is provided, including general references, sourcebooks, teacher training materials, instructional materials and other teaching aids. (SK)

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SPECIAL TOPICS

Population Information Program, The Johns Hopkins University, Hampton House, 624 North Broadway, Baltimore, Maryland 21205, USA

Population Education in the Schools

Summary. Formal population education is designed to teach children in school about basic population issues and, in many cases, to encourage them eventually to have smaller families. Some programs include specific units on human reproduction and family planning, while others do not. National population education programs began during the 1970s in about a dozen countries, mainly in Asia. These include Bangladesh, India, Indonesia, South Korea, Malaysia, the Philippines, Sierra Leone, Sri Lanka, Singapore, Thailand, Egypt, Tunisia, and El Salvador.

A strong case can be made for including an important contemporary issue like population in the school curriculum. Nevertheless, educational innovation is a difficult and long-term process. As a rule, it takes 5 to 10 years before new material can be fully incorporated in a school curriculum. Curriculum changes must be carefully planned, thousands of teachers trained, and appropriate materials prepared for classroom use. Moreover, differences of opinion over the need, acceptability, goals, content, methods, and other aspects of population education have held back programs in some countries. Where population education programs have been implemented, student knowledge of population issues increases, but it is not yet clear whether in-school education has a measurable impact on fertility-related attitudes or behavior.

Rationale for Population or Family Life Education

Population education has been defined as

an educational program which provides for a study of the population situation in the family, the community, nation and world with the purpose of developing in the students rational and responsible attitudes and behavior toward that situation. (250)

Why should such a program be part of formal schooling? Formal education should prepare the young for adult life by teaching relevant information and skills; it may help to build attitudes and values at an early age; it prepares individuals for roles as community and national leaders; and it supports national social and economic development. If the schools are to perform these vital roles fully, they should include population in the curriculum, since population and family life issues are an important aspect of many personal, community, and national decisions.

Population education takes various forms. The most comprehensive approach is through the government-operated primary and secondary school system. Usually population topics are incorporated in social studies, geography, home economics, science, and mathematics courses. The most extensive program is in the Philippines and includes all 12 grades. Since

school dropout rates are high, programs restricted to secondary schools reach only a small percentage of the school-age population. Several countries, such as Indonesia and Sierra Leone, chose to start population education at the secondary level and phase in primary schools later.

Smaller-scale activities within the school system are underway in many other countries. They are often carried out by family planning associations or other private voluntary organizations, working in cooperation with the schools. Such activities range from sending speakers into classrooms, as in Mexico, or supplying teaching materials, as in Mauritius, to training teachers in a specific discipline, such as home economics or biology. Sometimes small projects have sparked the development of national programs. At the same time, of course, a great variety of vocational, extension, adult literacy, and out-of-school programs not covered in this report reach a generally older population.

Government Population Policies

Where governments do not have policies to reduce growth or governments have changed, as in Sierra Leone and Sri Lanka, in-school programs tend to stress "population literacy"—that is, learning about population issues from different points of view so that students will be better able to make rational personal decisions. Where governments have explicit policies calling for a reduction in population growth, as in Indonesia, South Korea, the Philippines, and Singapore, in-school programs also seek to build support for government policy and to promote smaller families. As a UNESCO sourcebook on population education in Asia noted, "Population education is not meant to replace family planning, rather it is meant to be a supplementary and/or

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Phyllis T. Piotrow, Ph.D., Director; Walter Stender, Associate Director; Ward Rinehart, Editor.

complementary program" (226). Material about human reproduction and family planning is included in population education in some Asian and Latin American countries, usually as part of "family life education." These topics are not included in other countries, such as Bangladesh, Indonesia, Malaysia, and Sri Lanka, because of anticipated religious, ethnic, or political opposition.

National population education programs are usually administered through a unit in the ministry of education. To be most effective, these units need to coordinate population education activities not only throughout the formal school system but also with community leaders, other population and family planning information programs, national or regional academic testing bodies, private schools and universities, and national and international funding sources. As with any program, continuity of leadership and high-level support are essential to success. (See Recommendations, p. M-230.)

In some developing countries population education has been linked with educational reform. Reform means introducing new subject matter relevant to modern life and encouraging new teaching methods that stimulate more student participation. On one hand, population issues lend themselves readily to this approach. On the other hand, teachers who are accustomed to giving lectures and calling on students to recite memorized material may find it difficult to guide class discussion on a new, complex, and possibly controversial subject.

Role of Teachers Crucial

Success in implementing a population education program depends on how well teachers are trained and supported in introducing the new subject. For a national program this is a massive task. Thousands of teachers now in classrooms need training and continued guidance. If population education is to become a standard part of the curriculum, pre-service training for new teachers also is required.

How can so many classroom teachers be trained? Face-to-face training is preferable, but it is time-consuming and expensive. Those who train the teachers must be trained first. Widely dispersed teachers have to come to training centers, and during the school year substitutes may be necessary in the classroom. At best, most programs can manage a 3- to 5-day training course, but in both South Korea and the Philippines teachers found that this was not enough. Independent self-learning projects and correspondence courses, sometimes tried as alternatives, are not always effective. In surveys teachers cite insufficient training and an already overcrowded curriculum as the major impediments to population education.

Furthermore, teachers need textbooks, lesson plans, model lessons, charts, and, if possible, student workbooks. Because classrooms are crowded and teachers overworked, teachers need simple, practical materials, linked to local issues, that can be used without extra work on their part. In places as diverse as Baltimore in the US and the Philippines, teaching materials have proved most successful when teachers helped to prepare them.

The most efficient way to incorporate population topics into teaching materials is during a comprehensive curriculum revision. This was done in Indonesia, Nepal, Sierra Leone, and Sri Lanka. Such revisions usually take place no more than once or twice a decade, however. Another effective way to see that population topics are really taught in class is to include questions about population on standardized national or regional exams.

Implementation

"The ultimate goal of a population education project is to become an institutionalized, integral part of the educational system," according to T. S. Mehta, an Indian educator who helped to develop guidelines to include population education in World Bank loans. At that point, the additional effort and cost of maintaining the program should be minimal, since materials are already prepared and teachers trained. South Korea, after about eight years of assistance, no longer receives external funds for in-school population education. There are, however, no general guidelines to indicate how long it should take or how much it should cost to implement a population education program in the schools.

In most countries implementation has been slow. Funding from the United States Agency for International Development, the United Nations Fund for Population Activities, and the World Bank has helped to stimulate programs, but long-term national effort is necessary to institutionalize a national program. Except in a few countries, most of the effort to date has focused on curriculum development and pilot projects, with full implementation still ahead. In many countries program leaders have moved to new jobs, and initial plans have been delayed or changed in scope. Differences of opinion may persist between family planning officials who want to see a measurable impact on fertility and educators who prefer to stress teaching basic skills and subjects rather than trying to convey a message such as the need for smaller families.

Overall, the field of population education is a challenging one—difficult because it involves large and cumbersome educational systems that are underfunded and overburdened; frustrating because it requires close coordination among many different groups without producing an easily identified result; but critically important because it has the potential to inform and influence the younger generation on a subject of vital personal and global importance.

End of Editors' Summary.

BACKGROUND

What is population education? A much used definition, proposed at a 1970 workshop in Asia sponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), states:

Population education is an educational program which provides for a study of the population situation in the family, the community, nation and world with the purpose of developing in the students rational and responsible attitudes and behavior toward that situation. (250)

The 1981 Conference of African Parliamentarians on Population and Development devoted considerable attention to population education. The Conference defined population education as

an educational program which helps individuals and groups ... to define for themselves the nature of the problems involved in demographic processes... and to determine the means which society as a whole, and they themselves as individuals and/or groups, could use in order to react to those processes and influence them with a view to improving the quality of life, both present and future. (172)

African approaches to population education usually emphasize cultural diversity, "education for development," environmental issues, and family life education for girls (172, 248). Acquiring knowledge is stressed more than changing attitudes or behavior.

A Latin American seminar defined population education as a multidisciplinary educational effort that shows the factors which influence the qualitative and quantitative characteristics of the human population and that contributes to the preparation of the individual in the areas of sexual education, family life education, civics, population awareness and environmental education.... (280)

In a number of Latin American countries population education focuses more on the individual and family life than on demographic issues.

The nature of population education, including both the content and goals of in-school programs, varies widely. One observer concludes that "population education will be what population educators in each locale define it to be" (31). In many respects population education will depend on overall national policies and the degree of government and community concern over population issues.

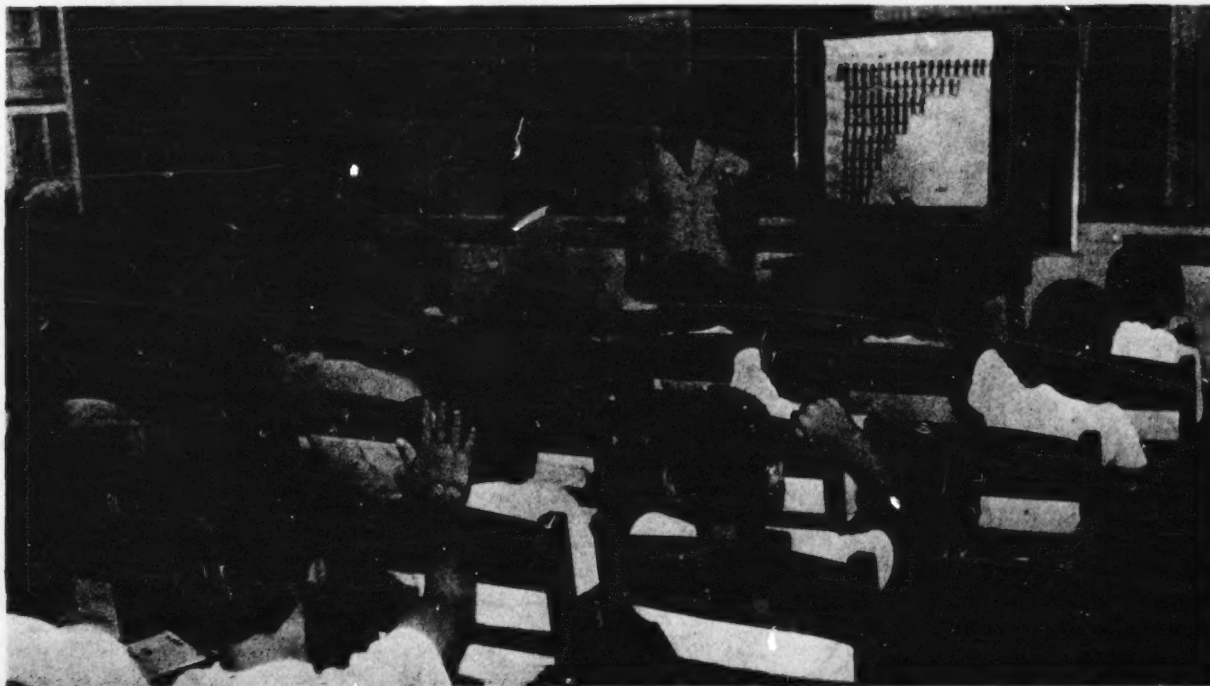
Current Programs

The first proposals to include population issues in school curricula were made as early as the 1930s by the Population Commission of Sweden (149) and the US National Education Association (113). Concern about declining population growth rates in developed countries motivated these proposals.

By the late 1960s rapid population growth had revived interest in population education. Many governments, especially in developing countries, were adopting national policies either to reduce population growth or to provide family planning services as an integral part of health and development programs. As a result, more attention turned to the role of the school system in teaching children about population issues and influencing their attitudes about family size at an early and formative age. In 1974 the World Population Plan of Action declared,

Educational institutions in all countries should be encouraged to expand their curricula to include a study of population dynamics and policies, including, where appropriate, family life, responsible parenthood and the relation of population dynamics to socio-economic development and to international relations. (312)

Now almost a dozen national programs are reaching the schools, and many more are in planning stages. During the



At least 40 percent of the people in most developing countries are under age 14 and spend some years in school. To take advantage of the opportunity to reach so many people, a number of countries have started population education programs in the schools. In the Philippines nearly all children attend primary school. Here third-grade math students study population growth. (Philippine Population Education Program)

1970s a number of national programs were begun, mainly in Asia, with funds from the United Nations Fund for Population Activities (UNFPA), the World Bank, and the United States Agency for International Development (USAID) and often with technical assistance from UNESCO. Bangladesh, South Korea, Indonesia, Malaysia, the Philippines, Sri Lanka, and Thailand have received aid ranging from \$500,000 (US) to over \$1 million for 5- to 12-year programs. In other regions Tunisia, El Salvador, and Sierra Leone have started national population education programs. (See Table 1 and Table 2, pp. M-232-235.) During the 1980s India, Nepal, and China will undertake programs with UNFPA funding that ranges from about \$500,000 each for China and Nepal to over \$5 million for India—the largest single population education grant (see Tables 2 and 3, pp. M-232-237).

With or without outside funding, a number of private population and education organizations around the world have created local or small-scale activities to help teach school children about population. Their activities range from preparing materials for classroom use to sending speakers into the schools (see p. M-207). The activities of private family planning organizations and similar groups laid the groundwork for national government population education programs in a number of countries, including the Philippines and South Korea.

Rationale

The rationale for teaching about population in schools is clear:

- The purpose of education is to prepare the young for adult life. This requires both presenting relevant information and teaching analytical processes and skills that can be broadly applied. Since population affects all aspects of modern life, important population issues and methods for analyzing population problems should be an integral part of in-school education (117, 331, 338).
- Education can also build the attitudes and values that shape individual and social life (349). Where the environment, responsible parenthood, and other population-related issues are important national concerns, they should be addressed in the school curriculum.
- Family planning service programs often reach women only after they have had several children. Population education, especially when family life and sex education are included, can introduce and encourage the idea of responsi-



On a field trip students see for themselves how population size affects resource use. In some countries population education has been a vehicle for educational reform. Innovations such as field trips and discussion may replace lectures and recitation. (UNESCO)

ble parenthood and/or smaller families to both males and females (75, 192), and it can do so before reproduction begins.

- Schools prepare national leaders. Since those who have attended school often are influential in their communities, the schools should provide a basic background in population that would be useful for future leaders and officials.
- All countries have organized school systems with facilities and personnel in place. At least 40 percent of the population in most developing countries is under age 14 and attends school for some years. These children can be introduced to population and/or family life issues through the school system without need for new organizations or institutions.
- Changes in traditional family and community life, accelerated by migration to the cities and exposure to mass media, have diminished parental authority and enhanced the influence of the schools and peer groups on children (245).
- Finally, formal education legitimates society's concern with the subjects being taught (337). Thus, omitting population from the school curriculum might suggest that the issue has low national priority, even if the government supports family planning or other population programs.

Population Education and Educational Reform

Another argument made for population education is that such programs contribute to educational reform. In many developing countries the movement for educational reform gained momentum in the 1970s. Reformers wanted to move away from educational systems established by colonial governments (191) or organized solely along traditional or religious lines (198). They wanted, among other things, to add socially relevant subjects and practical vocational training to the curriculum instead of concentrating entirely on traditional subjects such as mathematics, history, and language (191, 356). They wanted to decentralize school systems so that schools in rural areas could better meet the needs of their students (119, 142, 198) and to encourage more girls to enroll and stay in school (25). Also, they hoped to introduce new teaching methods that stimulate active student participation in place of traditional "read-and-recite" techniques—lecturing by teachers and memorizing by students (64, 246).

For advocates of educational reform, population education has offered an opportunity to change both curricular content and teaching methods (89, 225, 246). Population topics are socially relevant. They can easily be adapted to new teaching methods such as "inquiry learning" and "values clarification." Inquiry learning calls for students to discover basic patterns or concepts from facts provided by classroom materials (18). For instance, using this approach, census data can stimulate a discussion of fertility, family size, and socioeconomic problems. Values clarification seeks to make students aware of their own attitudes and opinions on an issue (165, 329, 339). For instance, students may be asked how they feel about two statements: "Freedom of choice for each individual—having children is a personal matter" and "One more won't make any difference" (548). Both methods encourage student participation and may develop analytical and decision-making abilities (54, 89). In Egypt, for example, the use of these new techniques in population education has aroused widespread interest among educators in their use for other subjects (147) (see box, p. M-218).

Some observers, however, question whether population education should be linked so closely to educational reform. Using

Table 1. Major Characteristics of Selected Established In-School Population Education Programs

Region, Country, Date of Program Initiation, & Ref. No.	Govern- ment Popula- tion Policy & Year Adopted ¹	Administering Agency	Curriculum			Teacher Training		Materials Developed	Program Evaluation ²
			Content Emphasis	Grade Levels	Subjects Used	In- Service	Pre- Service		
ASIA & PACIFIC									
Bangladesh 1976 (56, 134, 266, 278, 289)	A 1971	Population Education Program in Ministry of Education	Population trends and effects, popu- lation and development	4-12	Home eco- nomics, lan- guage, mathe- matics, natural science, social science, social welfare, and vocational and technical education	Training sessions by district population education of- ficers, ad- ministrators, and trainers	Partially introduced in primary and second- ary teacher training curricula	Teachers' manual in pilot stage	UNFPA needs assessment, 1978 (290); evaluation of change in stu- dent know- ledge, 1980 (363); review of teacher train- ing progress, 1980 (362); UNESCO eval- uation of pro- gram progress, 1980 (208); tripartite re- view, 1981 (189).
Indonesia 1974 (56, 72, 75, 133, 134, 219, 257, 266)	A 1968	National Population Education Pro- ject in Ministry of Education and Culture. Coordination by BKKBN.	Population trends and ef- fects, govern- ment policies	4-6 7-12	Natural sci- ence, religion, social science Geography, natural sci- ence, religion, sports and health	One-day to one- month training courses for some mas- ter teachers ³	Partially in- troduced in some training institutions for second- ary school teachers	Student textbooks, teachers' manuals	Some evalua- tion of training and materials, 1979 (75); UNFPA needs assessment, 1979 (294); tri- partite review, 1981.
Korea, Rep. of 1974 (106, 219, 246, 257, 266, 313)	A 1961	Central Office of Population Education in Ministry of Education	Population trends and effects, family life, human reproduction, family plan- ning, gov- ernment pol- icies	4-12	Geography, home eco- nomics, phys- ical education, science, social studies	3- and 5- day courses for second- ary school teachers, training booklet for primary school teachers	Population course in some uni- versities and train- ing colleges	Teachers' manual, student workbook, reference and re- source texts, visual aids	Evaluation of curriculum, 1974, 1975, 1976 (106); UNFPA needs assessment, 1980 (313); tripartite re- view, 1981.
Malaysia 1973 (116, 118, 134, 219, 257, 266)	A 1966	Population Education Pro- gram in Cur- riculum De- velopment Center of Ministry of Education	Population trends and effects, en- vironment, government policies	4-9 4-6 7-9	Civics, gen- eral science, geography, health, history, language Mathematics Home science	Regular in-service training for some master teachers ³ , SLEMs in pilot stage	Integrated into health curriculum of training institute	Teachers' manuals, teacher training materials	UNFPA needs as- sessment, 1979 (301); tripartite review, 1981.
Philippines 1972 (246, 266)	A 1970	Population Education Pro- gram in De- partment of Education and Culture	Population trends and effects, hu- man repro- duction, fam- ily planning, government policies	1-10 1-8 5-10	Health, mathematics, social studies Science Home eco- nomics	Week-long courses for primary and sec- ondary level in- structors, SLEMs for teachers unable to attend	One-se- mester course at many teacher training institutions	Student workbooks (limited distribu- tion), teachers' manuals, teacher training modules and course guides	Changes in student know- ledge and at- titudes as- sessed, 1970-1972 (17); pilot test of curricula, 1973-1974 (17); UNFPA needs assess- ment, 1979 (311).

(Continued on next page)

Table 1. continued

Region, Country, Date of Program Initiation, & Ref. No.	Govern- ment Popula- tion Policy & Year Adopted ¹	Administering Agency	Curriculum			Teacher Training		Materials Developed	Program Evaluation ²
			Content Emphasis	Grade Levels	Subjects Used	In- Service	Pre- Service		
Singapore 1973 (72, 86)	A 1965	Singapore Family Plan- ning and Pop- ulation Board (SFPPB); Min- istry of Edu- cation	Importance of small family	5 1-6 10	Education for living Health Course for low achievers	Informa- tional se- minars for teachers and prin- cipals	Lecture series in health edu- cation course	NA	NA
Sri Lanka 1973 (20, 72, 257, 266, 277, 278)	A 1965	Population Education Project in Curriculum Development Center of Ministry of Education	Population trends and effects	6-9	Health, lan- guage, mathe- matics, sci- ence, social studies	Training by master teachers as part of reg- ular in-ser- vice pro- gram	15-hour course in training colleges	Supple- mentary course guides, reference book for teachers, sourcebook	UNFPA needs assessment, 1980 (315); UNESCO sur- vey of student knowledge and attitudes, 1981 (209).
Thailand 1972 (138, 229, 266, 278, 319, 472)	A 1970	Population Education Unit in Cur- riculum De- velopment Center of Min- istry of Edu- cation	Population trends and effects	1-7 8-12	Life experi- ences (family life and en- vironment) Social studies	5-day course for some sec- ondary teachers; some others ori- ented at in-service training.	One-se- mester course in training colleges	Teachers' manuals and course syllabi as part of general textbook revision	UNFPA needs assessment, 1979 (320)
AFRICA & MIDDLE EAST									
Sierra Leone 1977 (79, 114, 164, 314)	C ⁴ 1978	Institute of Education of the University of Sierra Leone	Population trends and effects	8-10	Social studies	1- to 2- week sum- mer work- shops	NA	Supple- ment to text for grade 8, new texts for grades 9 and 10	Tripartite re- view, 1981 (164)
Tunisia 1972 (241, 246)	A 1964	Population Education Team in Min- istry of Educa- tion (until 1975 in Min- istry of Health)	Population trends and effects, fam- ily and reli- gious values	7-13	All	3- to 4-day seminars and work- shops, one- day sessions on a theme or method	NA	Course outlines, audiovis- ual aids	UNFPA needs assessment, 1981 (324)
LATIN AMERICA									
El Salvador 1971 (246)	A 1974	Family Educa- tion Program, 1971-73; Di- rector of Adult Educa- tion, 1974-75; Director of Education Serv- ices, 1976-	Family life, environment, population dynamics	1-9 10-12	All Biology	Several teacher workshops	NA	Some teachers' manuals, educational games	UNFPA pro- gram progress mission, 1977 (213)

Note: For information on funding of some of these programs, see Table 3, pp. M-235-237.

SLEM = Self-Learning Educational Module

NA = not available

BKKBN = National Family Planning Coordinating Board (Indonesia)

¹ National government population policy from Norton & Hofstatter (161) except where otherwise noted

A = government policy is to reduce population growth rate

B = government supportive of family planning for nondemographic reasons

C = government policy either neutral or pronatalist

² Includes evaluation of program impact, tripartite reviews, preprogram assessments, and UNFPA needs assessment missions. Tripartite reviews are joint UNFPA, UNESCO, and host-country agency evaluations of how well a program is progressing towards its established goals. UNFPA needs assessments are 2-week visits by UNFPA staff and consultants to establish the current status and projected needs of all population programs, including population education.

³ A master teacher is a teacher from a particular school responsible for training all teachers in that school (i.e., a peer trainer) or a teacher of a particular subject responsible for training all the teachers of that subject in the district or region.

⁴ Source: UN (263)

population education to introduce new teaching techniques may confuse teachers trained in traditional methods and may divert the program from its main purpose—to teach about population. Both teachers and students may be unsure of what is expected of them. In Thailand, for example, where population education was the justification for a complete revision of the curriculum and of teaching methods, the information about population and family size that actually reaches the classroom is limited, according to recent observers (200, 231). Population education in Thailand includes such varied elements as discouraging prostitution and criticizing excessive ceremony.

Challenges in Implementing Population Education

The importance of including population issues and analysis in formal education is clear, but practical questions arise in implementing any program. These questions can be considered in terms of the six elements of any population education program:

Planning: Is a comprehensive national program feasible? If not, what alternatives are available? What are the goals of the population education program? Should population education promote specific attitudes or behavior, or should it emphasize acquiring basic knowledge and analytical skills? What should be the content and emphasis of population education? Should information on human reproduction and family planning be included? Should population issues be taught in primary or secondary school or both?

Administration: How should programs be administered and funded? How can adequate coordination be maintained? Can standardized tests include questions on population?

Curriculum Planning: Should population topics be treated in separate courses or integrated with other subjects? What topics are appropriate for different grade levels? How can concepts be organized in logical sequence throughout the various subjects and grade levels?

Teacher Training: How can thousands of widely dispersed teachers be adequately trained to present new and complex material, often using unfamiliar teaching techniques? How can universities and other teacher training institutions be encouraged to prepare new teachers in the field of population education?

Teaching Materials: Who should prepare materials on population to be used in the classroom? What kind of training do materials developers need? How can materials be distributed to all teachers and classrooms? How can materials be adapted to different settings?

Evaluation: How should progress in population education be evaluated? To what extent have plans for population education actually been implemented in the classroom? To what extent do changes in students' knowledge, attitudes, or behavior occur as a result of population education in the schools? Is it possible to measure changes in behavior that can be attributed to population education?

These are questions policy-makers, educators, and funding agencies need to consider in undertaking population education programs. The role of school systems is crucial to national development, but carrying out any educational innovation is difficult. Moreover, unlike the impact of some health and population programs, the impact of population education in the schools is not easily measured or demonstrated.

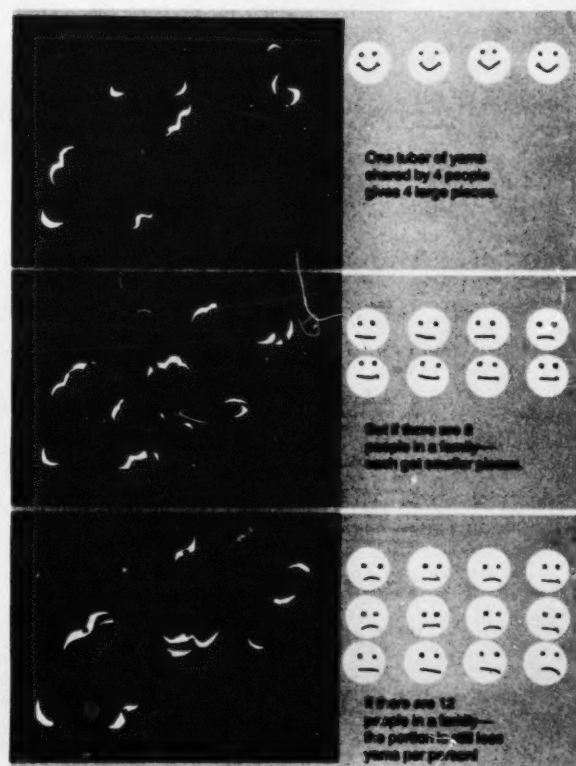
PLANNING

The first step in any population education program is to decide on the type of program and program goals. The type of program depends on what is politically, financially, and organizationally feasible. Program goals largely reflect national population policies since some form of official approval is required to work in the schools. Then the content and grade levels to be included must be determined. Content reflects the demographic situation and concerns of the country as well as planners' perceptions of what is acceptable to government and community leaders. The grade levels to be reached—primary or secondary school—depend on various factors including school enrollment and available resources.

Type of Program

Most of the programs discussed in this report are large-scale, nationally mandated ones. National programs usually are centrally controlled, functioning within the established educational hierarchy. The existing educational system bears most of the responsibility for planning and implementing the program. National programs have the authority to specify the priority for population education in the curriculum. They can integrate and coordinate population content with existing courses. And they have the potential to teach large numbers of students about population issues.

In many countries large-scale, national programs are not feasible because resources are not available, because the govern-



Even physical objects can illustrate population concepts. This American Home Economics Association poster shows that portions of a yam are smaller when it must be divided among the members of a large family. (American Home Economics Association)

Population Education in the Philippines

The major goal of the Philippine population education program is to encourage lower fertility, but it has also had a major impact on strategies used to introduce new concepts into a traditional curriculum. In 1969, meetings with university presidents, initiated by the Family Planning Association of the Philippines with the help of the Ministry of Education, aroused interest in population education. Planning began in the early 1970s with curriculum development at private institutions and workshops. This led in 1972 to the establishment of a national program funded by UNFPA. The program seeks to encompass all grade levels and major school subjects. At present, the program is working to reach non-government schools (268). Although most primary school students attend public schools, about two-thirds of secondary school students attend private or vocational schools where population education is not taught (246). Nevertheless, the scope of the program is remarkable, particularly in light of the diversity of the Philippine population.

Planning and administration of the project are carried out through a Population Education Program (PEP) within the Ministry of Education. Long-range goals are: to reduce desired family size, to develop responsible decision-making skills, and to make education more relevant to national needs. Short-term goals are: to train teachers, to develop materials for use at all levels, and to assure the permanent inclusion of population concepts in the established curriculum. Three divisions of PEP—training, curriculum development, and research—were established to coordinate activities related to these goals.

Since students at all grade levels were to be taught population concepts, the first task in **curriculum planning** was to decide which concepts should be included in each subject at each grade level. The matrix on p. M-222 shows the concepts included in each subject at the primary school level. In both primary and secondary school grades, short subunits on population issues were added to social studies (545), health (543), science (546), mathematics (544), and home economics courses. Two problems became apparent during this process: (1) the overcrowding of existing curricula and (2) the difficulty of choosing appropriate courses and levels for controversial topics such as human reproduction and family planning (17, 19, 341). Since only half of all eligible students attend secondary schools (see Table 4, p. M-212), these topics had to be included at the primary level. Planners eventually decided to include such topics as "knowing the genital organs" and "changes at puberty" in the primary grades, whereas "the human reproductive process" and "methods of contraception" were included in secondary grades (246).

As in most programs, in-service **teacher training** has been the greatest challenge. PEP's 1972 goal was to train 186,000 primary school teachers and 15,600 secondary school teachers by 1978 (246). The strategy developed to meet this goal was a tiered scheme: division supervisors took a 5-week training course covering population concepts, human sexuality, population education goals, and innovative teaching methods. These supervisors were then grouped into supervisory-training teams (STTs), which were to hold one-week teacher training sessions in their districts (120, 471). Three years later, by the summer of 1975, fewer than one-third of

the primary school teachers had been trained; secondary school teacher training had only just begun; and, of the original 410 supervisor-trainers, only 197 were still in the program (232). In light of these problems, two new teacher training strategies were developed—40-hour in-school sessions led by school administrators, and individualized training modules. Through this combination 208,000 primary and 40,000 secondary school teachers had been exposed to population education by 1978. This constituted 80 percent of all primary school teachers and 65 percent of all secondary school teachers (176). In addition to these in-service efforts, a 3-unit population education course (470) is offered, sometimes required, in teacher training institutions throughout the Philippines (56).

At the primary school level, teaching **materials** emphasize the impact of population trends on individuals and families. At the secondary school level, general population concepts and skills are emphasized. Materials include teachers' guides in both English and Pilipino (538–546), self-learning booklets for teachers (457–469), and a teacher training course guide (456). In a 1980 survey of 270 elementary school teachers, only about half thought that population education materials were adequate for their teaching needs (62). The survey and other field tests of materials also revealed that some materials were too complex (18, 19, 339, 340). In addition, teachers complained that lack of time made the introduction of new content and methods difficult (17, 62).

Evaluations have been undertaken by the PEP research section, some universities and colleges, and doctoral students. They include assessments of teaching materials and teacher training, site visits, and follow-up surveys in the schools (246) (see Evaluation, pp. M-224–231). One evaluation technique that has been useful in identifying difficulties encountered during implementation of population education is the "research utilization conference" (19). During these conferences, teachers, administrators, and researchers first read literature reviews of topics such as inclusion of human sexuality in the curriculum (341) and the effectiveness of discovery (inquiry) learning techniques (18). They then discuss how these reviews relate to actual classroom experiences. From these discussions, the following major needs had been identified by 1977:

- revised teacher training programs that address population content and new teaching techniques more thoroughly,
- additional teaching and reference materials on population issues and human sexuality,
- more efficient distribution of materials,
- more materials relevant to local conditions and in local language or dialects. (This is now being addressed by a "regionalization" project that seeks to adapt specific topics to different geographic areas (177).)
- consolidation with other subjects to reduce overlap and overcrowding (17).

Some of these needs will not be easily met, largely because the program is already underway on a national scale and the education hierarchy may not be flexible enough to deal efficiently with local or subject-specific needs.

ment or education ministry does not support population education, or because schools are locally controlled. Population education can still take place, however. As an alternative to national programs, and sometimes in addition, smaller programs may address a few issues or may be implemented in a small geographical area. Such programs often are operated by groups outside the schools, working with the cooperation of school officials. Although these programs are not comprehensive, they are relatively easy to implement, and they expose at least some children to important ideas. These smaller programs range from providing speakers for classrooms to training teachers of specific subjects.

In one type of small-scale activity, private family planning or other organizations make presentations in the schools about population and family planning. This requires the support of the school district but avoids the need for a large teacher-training program. An example of this technique is found in the state of Chihuahua, Mexico. Since 1974 the Centros Maternidad-Infantil y Planificación Familiar, headed by Guadalupe de la Vega, has been making 3-hour presentations on the importance of family planning to sixth-grade classes (57). Psychologists and a physician talk to the students, use audiovisual materials, and answer questions. In the United States local Planned Parenthood Associations or trained health educators make presentations to classes and to groups of teachers (178). While valid and useful, these types of activities may have limited impact, since students usually are exposed to population content for only a short time.

Some school systems without official programs use pamphlets or books about population that are prepared for students and teachers by other organizations. For instance, beginning in 1970, the Mauritius Family Planning Association (MFPA) distributed to all primary schools a booklet on population trends by the International Planned Parenthood Federation (IPPF). Entitled *Facing the Future: A Workbook for the Children of Mauritius* (514), it included an endorsement of the booklet by the prime minister. The workbook was simple yet comprehensive and could be used in class with little teacher input. In part because of these MFPA activities, the Mauritius Institute of Education now offers a course on population and family life education to interested teachers (166).

Population education also has been promoted through specific disciplines. Beginning in 1971 the American Home Economics Association (AHEA), with assistance from the US Agency for International Development (USAID), has helped home economists in 28 countries to integrate population and family planning information into their programs, including in-school programs (26, 143). For example, Jamaica received \$50,000 (US) as "seed money" in 1972 (143). The project included updating home economics curricula in teacher training colleges and organizing workshops for home economics teachers.

Another example of introducing population education through a specific discipline is the Biological Sciences Curriculum Study in the US. This organization produces texts and other teaching materials for biology courses. Many of these now include discussions of human population changes and their environmental and social effects (146). Including population topics in standard texts is a particularly cost-effective way to introduce population education.

Program Goals

All national population education programs have as stated goals to increase knowledge and understanding of population issues, especially as they relate to social and economic devel-

opment within each country. Most programs also include as a goal to help students develop rational and responsible attitudes and behavior on population-related issues in personal, family, and community life (116, 246, 278, 289, 292, 295, 308, 312). But the extent to which these general objectives are spelled out in terms of specific lessons varies widely. It is sometimes not clear what the goals of a population education program really mean in the classroom.

In practice, the goals and, indeed, the very existence of population education programs depend on the overall population policies of the country. In Asia, for example, where many governments consider rapid population growth an obstacle to socioeconomic development, population education programs are usually designed to influence fertility. As was pointed out in the 1970 UNESCO workshop, "The reason for including popu-

WHERE DO YOU LIVE?

It was estimated (on 31st December, 1969) that the main town populations of Mauritius were:

Port Louis	139,300	Vacoas-Phoenix	48,900
Beau Bassin-Rose Hill	71,260	Quatre Bornes	45,400
Curepipe	51,960		

ASSIGNMENTS

1. Locate the five places mentioned with a spot on the map opposite, then draw in one bold dot for each 1,000 of the population. At the site of Curepipe you will, for example, draw in 52 dots.
2. Now look at the population density map you have produced and comment on the result.

Answer here:

MAURITIUS
0 5 10
MILES



Many private voluntary organizations have supplied the schools with speakers or teaching materials on population. In Mauritius the International Planned Parenthood Federation and the Mauritius Family Planning Association prepared a student workbook that uses participatory exercises to teach concepts such as population density. Source: Hazelden, D. and Naik, R. *Facing the future: a workbook for the children of Mauritius*. Nairobi, Kenya, International Planned Parenthood Federation and Mauritius Family Planning Association, 1972. (514)

Population Education in the Republic of Korea

The South Korean population education program evolved from the government's population policy, which in 1962 established the goal of reducing annual growth to 1.6 percent by the end of 1981 (161). In-school education was seen as a means to increase awareness of population growth and to change traditional values that contribute to high fertility (99). Using the education system to support government policies makes particular sense in Korea, where school attendance is high, ranging from 98 percent in grades 1 through 6 to 64 percent in grades 10 through 12 (244). Also, Korea is relatively homogeneous in culture, religion, and language. Studies in the early 1970s by the Central Educational Research Institute and the National Family Planning Center indicated that an organized population education program would be accepted by most communities (34, 100).

In 1974 the Korean government, the Ministry of Education, and UNFPA announced a master plan for population education. **Planning and administration** of the program were assigned to a Central Office of Population Education (COPE) within the Ministry of Education. The initial goals of COPE were to address population topics at all grade levels and to coordinate population education activities with other government and private agencies. Later, to reduce costs, emphasis focused on the high school and middle school levels. These levels were emphasized because secondary school students are closer to the age when they will actually make fertility-related decisions (216, 257).

Curriculum planning covered 30 concepts, which were consolidated under six headings:

- human reproduction and family life,
- family size and standards of living,
- population and the environment,
- population and the economy,
- the effects of population phenomena on human life,
- population policies and programs.

Population concepts related to each heading were included in mathematics, Korean history, social studies, science, physical education, and home economics courses. In secondary school separate population units were included in the curriculum, while in primary grades concepts were incorporated into existing units.

COPE's original in-service **teacher training** plan was to provide 5-day training sessions during school vacations for 35,000 primary school teachers, 15,000 middle and high school teachers, and 2,000 school administrators by the summer of 1977. When the program emphasis shifted to the middle and high schools levels, these teacher training goals were revised. Under the revised plan 6,000 high school teachers and 11,500 middle school teachers had attended 3-day training sessions by 1978. Before the training sessions teachers and COPE staff participated in workshops to develop appropriate training materials. Primary school teachers have received only a training booklet (246).

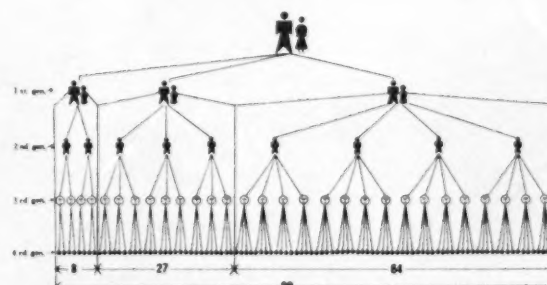
Pre-service training programs have made limited progress. Four national universities have specific optional population education courses or have integrated population topics into established courses. Some provincial colleges have been given funds to develop population education courses adapted to regional needs (104, 246).

Teachers' guides, student workbooks, audiovisual aids, and other **materials** were produced by the Korean Education Development Institute (KEDI) under the supervision of COPE (107). Materials address the 30 selected population concepts and utilize teaching techniques that encourage student participation. In 1976 KEDI published two model population education learning units, "Population Size in Korea and Betterment of the Living Standard" for a fifth-grade social studies course and "Population Urbanization: Causes, Results, and Solution Measures" for a seventh-grade social studies course (106). Both of these units stressed the negative effects of population growth and the behavior and policies that would contribute to slowing population growth.

Three field tests of secondary and upper primary level population education materials between 1974 and 1976 led to the following recommendations for the Korean program:

- Human reproduction should be taught in population education programs.
- Population education should focus directly on population problems and the attitudes and actions needed to solve the problems rather than on general population concepts.
- Teachers should have close guidance when first working through population education lessons.
- Population concepts should be introduced as separate units at the secondary level and incorporated into existing lessons at the primary level (106).

Evaluation of Korean population education has included surveys of attitudes toward population education as well as field tests and analyses of curricula, materials, teacher progress, and student achievement (34, 100, 106, 246) (see Evaluation, p. M-224). Most research has been conducted by KEDI and by COPE, with some assistance from universities. In Korea, as elsewhere, evaluations indicate that a major barrier to incorporating population education into the school system is teachers' lack of confidence in dealing with both the subject matter and the new, discussion-oriented teaching methods, especially when sensitive and potentially embarrassing topics are to be discussed.



Charts can help teachers explain population concepts. This Korean chart shows the effect of family size on population growth: If each couple has 2 children, in the fourth generation there will be 8 people for every 2 in the first generation. If each couple has 4 children, in the fourth generation there will be 64.

Source: Korean Educational Development Institute [KEDI]. Teacher's guide for population education in social studies of grade 1st, 2nd, and 3rd in elementary. Seoul, KEDI, November 1974. (107)

lation matters in the content of school programs in the region is the hope that this will lead to a change in behavior"—that is, to smaller families (250).

Another, related goal in such countries is to build support in the schools and community for national population policies. In Indonesia, for example, one of the objectives is

to develop a positive attitude towards population policies and programmes of the country and a preparedness for active support of population programs as part of an overall development effort. (295)

National population programs may include promoting later marriage, slowing the rate of rural-to-urban migration, and increasing the participation of women in development, as well as encouraging family planning and promoting a variety of other development objectives (161, 283).

In contrast to Asia, many sub-Saharan African and Latin American countries do not have explicit population policies. In Africa, if population education programs are undertaken, the goals tend to be improving health, preserving family values, and increasing awareness of environmental stress (33, 52, 344). An exception is Upper Volta, where population education is part of a sex education program (218). In many Latin American and Caribbean countries, an implicit goal of in-school programs has been to reduce high rates of adolescent pregnancy, abortion, and sexually transmitted diseases (219, 368). In the late 1960s Colombia and Chile both initiated programs stressing population awareness, but implementation has been very limited (see Table 2, p. M-232). Even where there are no national population policies, population education can serve a useful purpose by introducing the younger generation to basic demographic information.

In developed countries most governments do not have national population policies or programs. In-school activities range from mandatory sex education in Sweden (82) to locally prepared courses, such as the Baltimore, Maryland, program in the US, that stress community, national, or global demographic and environmental concerns (69) (see p. M-214).

Prescriptive or Nonprescriptive Approach?

Regardless of officially stated goals, a basic issue in implementing population education is: Should teachers and prepared materials actively promote specific attitudes and behavior (prescriptive approach), or should they only present facts and offer different points of view on population issues (nonprescriptive approach)? Advocates of a prescriptive approach point out that one of the immediate goals of most population education programs is to make students aware that smaller families are desirable. Thus, they argue, this point should be specifically emphasized in school (61, 221). An example of the prescriptive approach is a skit performed in a Chinese kindergarten (168) (see box, this page).

Proponents of a nonprescriptive approach argue that population education should be, if not value-free, at least value-fair (333). In other words, even if the goal is to reduce fertility, different views should be presented so that students can learn to reason and to analyze population issues and reach their own conclusions. Proponents of this view, who include many Western educators, suggest that population should be viewed "not as a problem to be solved but as a phenomenon to be understood" (338). In nonprescriptive programs the major goal is to promote "population literacy"—an understanding of basic demography, the effects of population changes, the interaction of population issues and government policies, and the effects of individual behavior on population trends (125, 338).

"FAMILY PLANNING IS GOOD"

Excerpt from a dialogue recited by children in the kindergarten, Hei-chuang-hu Production Brigade, Shuang-ch'iao Commune, Ch'ao-yang District, Peking Municipality, People's Republic of China, shows the highly prescriptive nature of in-school population activities in China.

Together: Family planning is good; let us commit Chairman Mao's teachings to memory. For the nation, and for the world, dear uncles and aunts, let us not forget it.

Hsiao-an: My name is Hsiao-an; I have an older sister who is all of thirteen; older sister loves me, and I love older sister; the two of us are a pair of good companions. Father labors in the rice fields; mother is busy in the vegetable patch. To criticize Lin and criticize Confucius we rush to the fore; we learn of theory and engage in criticism; we are wholeheartedly for collectivization; and wish to contribute more to the revolution. After we have supper, father narrates family history to me and mother teaches me to sing songs. Older sister is my counselor; the study of Chairman Mao's works comes first. Together we compile children's songs; we shall never forget the class struggle; we are little people, but our ambitions are great . . .

Hsiao-kang: My name is Hsiao-kang. I have a host of older brothers and sisters, and also have a younger sister named Hsiao-fang. I am not a good talker, and merely make random remarks. Father and mother are busy at their work; our family affairs are in a complete jumble; older brothers and sisters are of no avail. They bother mother until she is truly frustrated. I, Hsiao-kang, am like a little sheep; I run around as I please and bump into everything. My little friends tattle on me; so when I get home, I shall surely get slapped. You who are called Hsiao-an, let me ask you: Why is your family able to study and to criticize, while my family from day to night is always in one big mess, and is always in a meaningless uproar?

Hsiao-an: You who are called Hsiao-kang, listen to what I have to say: You must not forget Chairman Mao's teaching; family planning is most important; and your father and mother have not carried it out.

Hsiao-kang: You who are called Hsiao-an, what you have said is true; you have correctly found the root; I, Hsiao-kang, for myself, I understand, and I shall learn to propagandize family planning.

Hsiao-an: Hsiao-kang, let us both go among our uncles and aunts to propagandize on this topic!

Source: Orleans (168)

Regardless of theoretical advantages or disadvantages, population education programs tend to be prescriptive if the government has a clear population policy that is actively implemented. They tend to be nonprescriptive if there is fear of religious, cultural, or political opposition to family planning. In Sri Lanka, for instance, where the policy is nonprescriptive, one population educator pointed out:

It was not our business to advocate the small family norm. We would not do anything to create direct conflict with socio-cultural and socio-religious norms that may be cherished by certain sections of the society. (20)

In a comparison of three Asian programs, R. Antony Gnana-rajah and Stewart Fraser point out that population education activities in Sri Lanka, Singapore, and Indonesia "reflect essentially political rather than educational realities of the situation" (72). The nonprescriptive approach that prevails in Sri Lanka is theoretically designed to help in "making decisions through informed, reasoned process." Yet the curriculum does not spell out "the steps through which such concepts or skills would be introduced and taught to the students" (72). The researchers attribute this lack of specific guidance in Sri Lanka to religious and ethnic opposition and to shifting political and bureaucratic leadership within the government.

In Singapore, on the other hand, the population education program promotes a simple and direct "small family, good citizen" message. For example, primary school teachers in Singapore are encouraged to "ridicule out of existence pictures and charts glorifying large families" (72). Although clearly prescriptive, school activities are part of a comprehensive national program that appears to have public support. The Indonesian population education program, following a political tradition of rule by consensus, has taken a middle course. Rational persuasion is stressed as a means to convince students of the value of small families.

Basic Content

The content of population education programs is influenced by the specific national situation as well as by political and educational goals. Most programs include several topics: (1) the current population situation, (2) basic demographic concepts, (3) the consequences of population change, and sometimes (4) human reproduction and family planning (194). The amount of time and emphasis given to each subject varies widely. (See p. M-222 for a listing of the topics included in the Philippine primary school population education program.)

In Asia the content of population education focuses on "population trends and the quality of life." For instance, a population education sourcebook prepared by an Indian educator during an overseas study tour includes sections on:

- trends of population change in India,
- the population of India in world perspective,
- projections of population change (theory),
- factors of population change (theory),
- the relationship between population and resources (theory),
- population and agricultural production,
- population and nutrition,
- population and resources,
- population and environmental pollution (413).

By contrast, in most sub-Saharan African countries, health issues, urbanization, migration, and environmental issues are emphasized more than the effects of high fertility (31, 33, 52). In many Latin American and Caribbean countries, education about human sexuality and family life takes priority over demographic issues (368). In these areas the term "family life education" is more widely used than "population education" to describe these efforts.

The content of population education may need to be adapted to a specific setting—for example, to a country, to urban or rural communities, or to a geographic region. In South Korea, where national unity is a major concern, population topics are closely integrated with Korean history and at the same time stress smaller families (246). In some countries regional adaptation may be needed. The Philippine program, which at first

used the same materials nationwide, has since made efforts to localize population education content (118).

Sex Education or Not?

A major issue is whether population education should include human reproduction and family planning methods. Logically, programs that have as a goal teaching individuals to think and behave rationally should provide full information about alternative ways to behave. Also, in countries where out-of-school publicity about family planning is widespread, the lack of in-school sex education may create a curious contrast (121). In fact, however, fear of adverse public reaction often deters edu-

Table 4. Literacy and School Enrollment Rates in Selected Areas with Population Education Activities

Region & Country	Adult Literacy Rate ^a	Years of Required School Attendance ^b	% of School-Age Children in School ^c					
			Primary Level			Secondary Level		
			Total	Male	Female	Total	Male	Female
ASIA								
Bangladesh	26	0	72	103	40	22	32	11
China, People's Rep. of	66	NA	112	111	114	72	86	59
India	36	5	79	94	63	28	37	18
Indonesia	62	6	80	84	76	22	27	18
Korea, Rep. of	93	6	111	112	111	74	81	67
Malaysia	60	0/6 ^d	94	95	92	48	52	44
Nepal	19	5	69	104	31	14	22	5
Pakistan	24	0	50	68	31	17	25	8
Philippines	88	6	105	102	107	56	65	47
Singapore	77 ^e	0	109	111	107	57	56	58
Sri Lanka	85	10	94	98	90	52	63	40
Thailand	84	7	82	85	78	28	29	27
AFRICA & MIDDLE EAST								
Egypt	44	6	74	88	58	47	60	35
Kenya	45	0	99	105	94	18	22	14
Mauritius	61 ^e	7	104	105	103	51	53	49
Nigeria	25 ^e	6	32	41	24	6	8	4
Sierra Leone	10 ^e	0	37	45	30	12	16	8
Tunisia	62	6	100	117	83	24	30	18
LATIN AMERICA								
Chile	99 ^e	8	118	118	117	52	49	55
Colombia	72 ^e	5	124	122	127	43	43	44
Dominican Republic	67	7	94	94	95	26	27	26
El Salvador	62	9	79	80	77	23	25	21
Nicaragua	90	6	85	83	88	26	25	28
Paraguay	84	6	102	106	98	25	26	25
NORTH AMERICA								
Baltimore, USA	99	10 ^f	108 ^g	NA	NA	82 ^g	NA	NA

NA = not available

^aSource: World Bank (358) except where otherwise noted. Data for 1974-1976, for population over age 15.

^bSource: UNESCO (244). Almost all compulsory school attendance regulations exempt a child if there is no suitable school within reasonable distance of home. Data for 1980.

^cSource: UNESCO (244) except where otherwise noted. Data mostly for 1977-1979. Percentages greater than 100 appear because the numerator of the enrollment ratio includes pupils of all ages, while the denominator is limited to the range of typical school ages. Therefore, the gross enrollment ratio may exceed 100 percent if the actual age distribution of pupils is broader than the official school ages. School age varies by country, and in many cases children attending primary school are older than the officially prescribed ages.

^dNo compulsory education in peninsular Malaysia; 6 years compulsory education in Sabah and Sarawak.

^eSource: US Department of State (326)

^fSource: Baltimore City Public Schools (371)

^gSource: Maryland State Department of Education (122, 124). Figures include approximations of private and religious school enrollment.

cators from dealing fully with human reproduction in the schools. In India, South Korea, Kenya, and the Philippines, for example, surveys have shown that teachers and parents generally favor including population issues in school curricula, but they are concerned about what children will be taught about sex and family planning (81, 100, 226, 328). For this reason programs in Bangladesh, Indonesia, Malaysia, Pakistan, and Sri Lanka avoid the subjects of sex and family planning, even though many administrators acknowledge the importance of teaching students that babies are not simply a "gift from God" (132). Fear of adverse community reaction may be exaggerated, however. In Mexico, for instance, Gustavo Cabrera Acevedo, Director of the National Population Council, reports that research on sex education through television shows public opposition to be a myth (374).

Recognizing national differences, UNFPA teams reviewing overall population programs urged that South Korea now consider adding sex education to the extensive in-school program (313) but recommended that Kenya clearly separate education for family welfare from "contraceptive education" (299). In Bangladesh teachers are given some training in sex education, but the subject is not taught in the schools (290).

As part of the planning process, community attitudes and values often are assessed through surveys, seminars, and consultations. In Tunisia community leaders were consulted both to learn their reactions as well as to promote population education (246). In Indonesia various religious bodies have been regularly consulted (118). In the Philippines a survey showed that most Muslims preferred big families because "big families will bring a sure number of followers in instances where trouble may arise or a family member may go into politics" (17). Consequently, population education units developed for Muslim students do not emphasize the advantages of small families or the effects of population growth. Instead, they emphasize concern for the family, relationships between parents and children, and the need to preserve land for future generations (17). Similar attitudes may be found among minority groups in other countries and can influence the content and emphasis of population education.

Primary or Secondary School Students?

The decision whether to include population education in primary schools, secondary schools, or both is an important one. On one hand, there are many arguments favoring the primary schools. In most developing countries enrollment in primary schools is two to four times greater than in secondary schools. In nearly all the countries listed in Table 4, fewer than half the boys and even fewer girls go on to secondary school. Even if enrollment figures are not precise, they show that most children do not reach secondary school. In fact, most rural villages do not have secondary schools, and older children may attend the primary school (36). Because of high drop-out rates, many educators recommend a strong population education program at the primary level, with special attention to girls (19, 36, 109, 110).

Moreover, the children who do not continue schooling beyond primary level are most likely to have larger families (44)—an important consideration if reducing fertility is a program goal. These children are also most likely to remain in the villages, where their education may give them increased influence (36). Even a little population education may help them eventually to plan for themselves and their communities.

Evaluations in South Korea and the Philippines suggest that, where population education units are taught in both primary

and secondary schools, the younger children show a greater gain in knowledge (62, 106) (see p. M-229). This is partly because younger children, not having been exposed to other sources of information, know less about population issues before taking these units. In addition, the material studied in primary schools is brief and simple. It can focus on a few key issues, such as the concept of planning a family rather than leaving family size to chance.

On the other hand, some educators argue that population concepts should be introduced only at the secondary school level since (1) secondary school students can better understand complex population education material, (2) they are closer to child-bearing age, and (3) they will ultimately be decision-makers in their countries (423). Also, because of the smaller number of students, teachers, and schools, it is less expensive and much easier to organize new programs at the secondary school level.

Ideally, of course, population education should be included in appropriate subjects in both primary and secondary schools. But experience in South Korea, the Philippines, India, and Thailand, where plans originally called for population education at all levels, suggests that training teachers and developing materials for all grades at once may be too difficult and costly (86, 154, 234, 246, 257). In Indonesia the program began with three upper primary/middle school grades and then expanded (348). This phased strategy may be more efficient than trying to introduce population education in all grades at once (86, 348).

ADMINISTRATION

Population education programs are usually administered by a unit within the ministry of education, as in the Philippines and South Korea. In Malaysia, Sri Lanka, and Thailand a population education cell was established within the curriculum development center of the ministry. In both Singapore and Indonesia, where political support for prescriptive programs is strong, the population education programs are linked with government family planning programs. The Singapore program is jointly administered by the Family Planning and Population Board and the Ministry of Education. The Indonesian program is under the general supervision of the National Family Planning Coordinating Board (BKKBN) but is administered by the Ministry of Education and Culture (76, 86). In Mexico population education is part of the sex education project of the National Population Council (60, 287).

Many different groups are involved in a population education program besides the teachers and students. Thus extensive orientation and coordination are necessary from the start. Once the political decision is made to develop a national program—and sometimes even before—ministry officials, administrators, supervisors, and academic experts need to be informed and convinced. Support from the top is essential to carry out any extensive changes in education. Regional workshops and overseas study tours paved the way for the first programs. Subsequently, national seminars have been held in Chile, Colombia, India, Indonesia, Malaysia, Nepal, the Philippines, Sri Lanka, Thailand, Sierra Leone, and Kenya (472). After a program begins, in-country training is often particularly useful since it can focus on problems specific to the area (243).

Coordination and Testing

Coordination is necessary throughout the educational system. This includes regional educational units in provinces and

Population Education in the US: Baltimore

In the United States in-school education is a responsibility of state and local rather than national government. Community involvement in education is the rule, and it is important that parents and local leaders approve of the curriculum. In the case of education about human reproduction and family planning, community acceptance is particularly important because these subjects are often controversial.

National activities in population education have been limited. In 1972 the President's Commission on Population and the American Future recommended that population courses be included in the schools (7). Teacher training workshops and classroom materials have been developed by private agencies such as Planned Parenthood/World Population, the Population Reference Bureau, and Zero Population Growth. Several of these programs were funded under the 1970 Environmental Education Act. A Population Education Act, proposed in 1970, did not pass, however (146).

Courses specifically on population education are not generally available in US schools, mainly because of lack of central support but also because of lack of materials and training opportunities (84). Only a few teachers colleges, including Columbia University (New York), the University of North Carolina, Florida State University, and Towson State University (Maryland), offer training in population education (4, 609). Materials often are available only through private agencies. Nevertheless, many individual teachers raise the subject and include population topics in courses on the environment or contemporary issues (16, 146, 150, 195).

The Baltimore Program

Only one population education program exists that covers an entire school district—in the city of Baltimore, Maryland, with a school population of about 122,000 students. The program was started by Caroline Cochran, a Planned Parenthood/World Population volunteer, and Lester McCrea, a social studies teacher. They took the initiative in winning approval from the school system, raising \$250,000 from private foundations for curriculum development, and holding teacher training workshops. The focus of the program is on demographic concepts, social issues, and urban life. Human reproduction (supposedly covered elsewhere in the curriculum) and family planning were not included because of concern over community opposition. The program no longer requires outside funding. It is now an established part of the curriculum.

In-service **teacher training** began in 1972-73 with nine 3-day urban life-population education workshops, each of which was evaluated by outside observers. In each workshop 30 teachers were introduced to population and urban issues, including controversial issues such as the emerging new role of women and the perception of some US minorities that family planning is equivalent to racial genocide. The workshops tested three different approaches to training. Evaluations showed that teachers learned the most from a formal presentation of basic facts followed by small-group discussions (42, 67). Evaluation also showed that primary school teachers found it harder to master the material than

secondary school teachers (67). More workshops have been held since, but they are shorter in order to reduce costs.

During the summer of 1973 nine teachers, selected from workshop participants, developed classroom **materials** for four different units. The materials were produced inexpensively. They contained few errors and were well-suited to local needs (239). After testing, four units were revised and reproduced for use in all Baltimore City schools beginning in 1975. Since 1975 they have been periodically revised and updated using reactions from teachers (42). The units are:

- *Life Around Me* (primary school), an introduction to demography (505),
- *B-More Baltimore!* (secondary school), a survey of the city's historical growth and places of interest (503),
- *Interplay: The American Family* (secondary school), a review of the role of students as future family decision-makers (504),
- *Production, Pollution, Population: Issues for a Changing World* (secondary school), a presentation of global population issues (506).

The primary level unit contains a number of activities, worksheets, and home assignments. Each secondary level unit contains 10 lessons that can last from one to three days, depending on the amount of supplemental material included. They cover such topics as differences among family units around the world, pressures on families, and attitudes affecting family size. All units are complete, ready to use, and include practical suggestions on how to present the material, such as lists of objectives, detailed outlines, complete home assignments, class assignments, and summary questions.

The Baltimore program has undergone more extensive **evaluation** than most programs. Experts from The Johns Hopkins University evaluated the workshops (67). Teachers as well as outside experts evaluated the materials (239). In addition, student achievement, attitudes, and behavior after completing a unit were evaluated (181). It was found that ninth grade students who had studied the *B-More Baltimore!* unit knew significantly more about Baltimore and about population-related urban problems in their city than a control group. In addition, students who had studied the unit had a more negative attitude toward population growth than the controls. No changes were observed in utilization of city services and agencies (181) (see p. M-231).

It took about five years and several dedicated people to start the Baltimore program. The success of the program can be attributed to several factors. Strong promotion by volunteers and effective guidance within the Baltimore school system helped win official support. Persistent follow-through ensured that the program was actually carried out. Finally, the materials used in the classroom were produced by teachers themselves and were "clear, concrete and well worked out to require little additional teacher time in preparation of lessons. . ." (240). They were easily understood by teachers and students. So far this combination of factors has not been duplicated anywhere else in the US.

cities, which in some countries have considerable autonomy; subject specialists in such different fields as biology, social science, and home economics; curriculum developers and textbook publishers; universities and teacher training centers; and principals and teachers in thousands of schools. Some of these come under the direct jurisdiction of the education ministry, but others may be quite independent. In Indonesia and the Philippines, for example, two-thirds to three-quarters of secondary schools are not operated by the government (72, 268). Thus in many cases the population education unit has a massive task to perform but limited authority to enforce its recommendations.

Coordination with other groups is also important. Parents and community leaders should be fully informed and encouraged to support the program. Experience has shown that programs which have strong local roots and are felt to meet local needs are most likely to be implemented (19, 23). Family planning agencies also can contribute to national in-school activities—for example, by training teachers or providing materials. Population education programs may benefit from close coordination with these agencies (86). Nevertheless, some educators are reluctant to be closely linked with family planning activities.

Another important area where coordination is valuable is in standardized grade and subject testing. A cost-effective way to ensure that key population concepts are taught is to include questions about them in any standardized national or regional test. A World Bank review of examination reform noted that, for the two school years before students take any standardized examination the "effective curriculum of the class is defined . . . by the content of the most recent selection examination paper" (370). Thus, changing the content of exam questions is likely to cause more rapid curriculum change than in-service training or changes in official syllabi. As one educator has pointed out,

our experience in Hong Kong suggests that in selective and highly competitive systems like ours, it is the public examination which provides the pivot around which the innovator might best turn the curriculum. (121)

Partly as a result of the AHEA-sponsored program in Jamaica (see p. M-209), questions on family planning were included in the Caribbean standardized examinations on home economics (13). In West Africa efforts are being made to include population issues in regional tests (314) (see p. M-226). In the Philippines an international team reviewing the population education program urged that population questions be included on both college entrance and civil service examinations (311).

Funding

Adequate long-term funding is necessary to carry out a population education program. Some of the original impetus for population education came from outside sources, such as family planning associations, then USAID, UNFPA, UNESCO, and the World Bank (see Table 3, p. M-235). In general, UNFPA supports government population education activities carried out by ministries of education (312). So far UNFPA has allocated about \$20 million (US) for this work. UNESCO provides technical assistance, frequently from regional offices in Asia, Africa, and Latin America and using traveling teams of experts (275). In addition to construction loans for school facilities and equipment, the World Bank has supported national population education programs as one part of more comprehensive education loans that cover the costs of curriculum development, preparation of materials, and teacher training (134). USAID assistance, at a much lower level, usu-

ally supports activities of private agencies, including, for example, a project to incorporate family planning into the teaching of home economics, various workshops, publications, and pilot projects (186). A problem for many funding agencies is that project cycles usually run for three to five years, whereas population education programs may not show results for almost a decade.

Outside funding has the advantage of permitting innovation when budgets are tight, but it also has disadvantages. For example, local input may be limited, or the funding may be abruptly ended. In the Dominican Republic, for instance, UNFPA funding for population education will end in 1982 even though a 1980 review praised the program's progress (288, 364). The proportion of internal funds contributed to population education programs generally is substantial. It is difficult to quantify, however, since ministries often provide facilities, equipment, and support staff rather than specific amounts of money.

Although needs for additional funding from outside sources should be minimal once a population education program is fully established and institutionalized, the process of innovation takes time. Five years is the minimum time necessary to introduce a new subject in a school system (129), and usually it takes longer. Without a long-term commitment by national leaders to provide indigenous funds, population education programs may be planned and administered on paper but not fully implemented in the classrooms.

CURRICULUM PLANNING

Once basic program content has been determined, incorporating population education into a school curriculum involves further decisions, such as:

- Will population issues be taught in separate courses or will they be integrated in some way into existing courses?
- What population concepts are best suited for particular subjects and/or grade levels?

In some countries—for example, Indonesia, Sri Lanka, Nepal, and Sierra Leone—efforts to include population education in the curriculum have coincided with renovation of the entire curriculum. In other countries—for example, the Philippines, India, and Tunisia—population topics had to be carefully worked into already established courses. Where population education can be introduced at the same time that basic textbooks and teachers' guides are revised, the process is organizationally simpler and less costly. Such revisions may occur only once or twice each decade, however.

Sometimes existing courses can readily be expanded to include population education. In El Salvador, for instance, secondary-level biology courses already included "human reproduction," "nutrition, food and population," and "man and his environment," so additional material on population could be readily included (246). By contrast, in South Korea a study done before the population education program began found that only one-third of one percent of the content in all school books related to population topics (34).

Separate or Integrated Courses?

Population content can be introduced either through an entirely separate course or as additional topics incorporated into existing courses (the "infusion" approach). Separate courses



Rapid population growth contributes to many problems of education—crowded classrooms, overburdened teachers, shortages of materials, and insufficient teacher training. (UNESCO)

mean less revision of existing curricula and fewer teachers to be retrained. The teachers offering separate courses, however, need extensive training, and many national curricula do not have room for a new course. Infusing population data and concepts into existing courses means less in-depth training but more teachers to train and more revision of existing courses (130, 207). Especially at the secondary level, most programs compromise by using a unit integration approach, in which several population topics are inserted as a unit into established courses. For the most part, separate courses are used only at the college level, while infusing material into existing courses is used at the primary school level.

Where units or other materials are integrated or infused into existing courses, experience in Sri Lanka and Indonesia suggests that they add 5 to 7 percent to the total time required for a course (133). This can be a continuing problem. A Philippine survey of teachers and administrators found that lack of time was one of the most serious problems in implementing population education (62).

The Korean Educational Development Institute (KEDI) has completed a number of studies of "curricular organization" for population education to determine which approach teachers prefer (106). After two trials, in 1974 and 1975, teachers reported that the unit integration approach was more effective than the infusion approach. A more detailed follow-up study, lasting over two months and involving 48 schools and 10 subjects, was completed in 1976. The teachers involved concluded that the more flexible infusion approach was most effective in primary grades, while the unit approach was most effective in secondary grades (106). Primary school teachers preferred the infusion approach in part because they considered self-contained units such as "Population and Employment" to be too difficult for their students.

Identifying Subjects and Grades

The next step in integrating population topics with an established curriculum is to determine what concepts should be introduced in what courses at what levels. Numerous outlines and hierarchically organized lists of population education objectives and concepts are available to help during the early stages of this process (99, 110, 156, 222, 266). It is often difficult, however, to maintain the logical order of a content outline when matching content to various courses and grade levels. Usually, a "scope and sequence chart"—a matrix of

major concepts, grade levels, and subjects—is developed during the process (53) (see p. M-222).

Much attention has been given to finding the best "plug point" (a term coined by Indian educators) to insert population materials into established curricula (99, 110, 155, 224). For example, "Population Education Curriculum for Schools," published by the state of Tamil Nadu in south India, lists the appropriate plug point, content, and activities for each concept to be included in the program (414). In primary schools a mathematics lesson on direct proportions becomes a plug point for the concept "when the number in a family increases, the population increases." A suggested activity is visiting a district government office to collect data on family and population size for use in class. In Indonesia a secondary-school geography unit on census results becomes a plug point for the topics of mortality and migration (75).

Deciding where to introduce population material in secondary school subjects is complicated by the fact that, in higher grades, students often take standardized tests on traditional subjects such as biology, history, and mother language. Thus secondary school teachers and students are reluctant to "dilute" these key subjects with population material, particularly since most standardized tests have not yet been updated to include questions about population (121). For these reasons population education is often introduced in lower secondary grades (grades 7-9), where performance on standardized tests is not stressed, or else it is introduced in nontested subjects.

At the primary level the curriculum is usually more flexible (207). Nevertheless, it may not be possible to introduce population topics in a logical order in primary grades because some topics are too difficult for younger children. For instance, of 1,083 Thai primary school teachers surveyed in 1972, only 16 percent felt that "methods of solving population problems" or "family planning" should be taught in primary schools. Only 21 percent thought that primary school students should be taught about "the consequences of population change." Nonetheless, 51 percent felt that their students should be taught the more straightforward topic "population characteristics of Thailand and nearby countries" (228). Some programs do appear to be too difficult at the primary school level. In South Korea, for example, 10-year-olds have been expected to answer multiple choice questions such as, "What is the most desirable way to reduce the difference between population density in rural and urban areas?" and 12-year-olds were asked, "What is an accurate description of the relationship between population increase and national health?" (106). The difficulty of population content was confirmed in an evaluation of the learning skills required to answer questions on a population literacy test developed by the UNESCO Regional Office for Education in Asia and Oceania (258). Of the 30 questions, 20 required relatively sophisticated learning skills (258).

Micro and Macro Approaches

One way to deal with complex content in primary grades is to use a "micro"—personal or family—approach rather than a "macro"—national or global—approach. In population education seminars sponsored by the Danish Family Planning Association in 1972 and 1975, curriculum developers from Egypt, Indonesia, Bangladesh, Nepal, and elsewhere prepared materials for 9- to 11-year-olds that emphasized individuals and the family (50, 51). In 1975 the Pakistani delegation prepared a curricular plan and teaching materials using a particular family to illustrate the effects of rural-urban migration. The plan and materials emphasized pollution, unemployment, expense,

and overcrowding in urban areas (51). By contrast, a Philippine second-year high school mathematics course takes a macro approach to the rural-urban migration issue. The unit covers urban dependency ratios, population densities in rural and urban areas, and migration rates in and out of rural areas (544).

In contrast to both micro and macro concepts, the Malaysian program uses a hierarchical approach. The ideas introduced are basic at the primary level but become progressively more complex at the middle and upper secondary school levels. For instance, under the topic "population, resources, and the environment," content at the primary level is "types of resources and environments." Content at the lower secondary level includes "effects of rapid population growth on the environment," and at the upper secondary level, "interdependence of countries in relation to resources" (117).

TEACHER TRAINING

Ultimately, only the classroom teachers can really implement a population education program. Thus the most important task—and one of the most difficult—is teacher training. While teachers themselves are rarely in a position to plan and promote national programs, without their support the plans developed by experts and officials will never be fully implemented. Experience in population education suggests that the more teachers participate in the processes of curriculum development and training, the more likely they are to carry out

the program (17, 75, 239). To be effective in the long run, training in population education must reach high proportions of current classroom teachers (in-service training) and of those studying to become teachers (pre-service training).

In-Service Training Strategies

In-service teacher training is the biggest challenge in any population education program. First, the number of teachers who must be trained is massive, especially if primary school is included. In Indonesia, for example, the school system consists of over 100,000 primary and secondary schools in which population education is required (75). In Egypt plans call for training more than 200,000 teachers (133, 292). Second, many of the teachers, especially in the primary schools, have limited education themselves. In India, for example, primary level teachers have as little as one year of schooling after secondary school (128). Third, most teachers are not knowledgeable about population data and concepts. For instance, in India, population education reportedly has been "popularized" since 1969. Yet a 1976 study of secondary school teachers in Bombay found that 54 percent had never heard of population education (328).

Various strategies have been suggested for training large numbers of teachers:

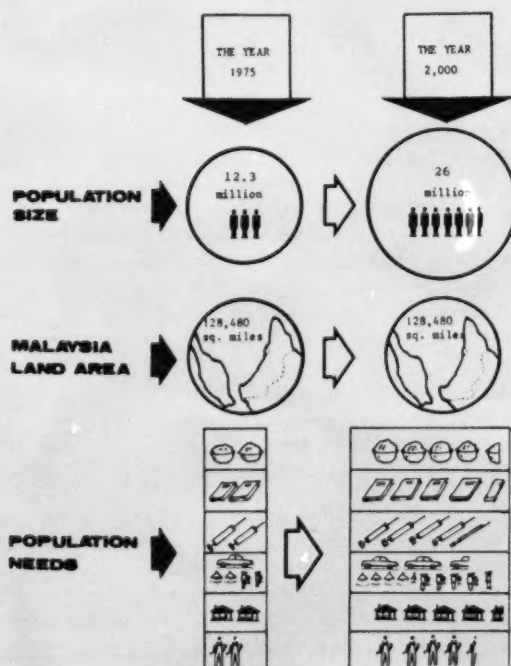
- face-to-face training by experts or supervisors in short courses or workshops,
- peer training, in which trained teachers instruct other teachers in their schools,
- Self-Learning Educational Modules (SLEMs), which introduce teachers to population education through self-explanatory booklets,
- correspondence courses using standard population education training material.

Face-to-face training has been widely used. Most programs involve several stages with, for example, national or international experts training district-level supervisors, who train school principals, who in turn train classroom teachers. The shortcomings are obvious: the quality of the training tends to decline at each new level (19). Classroom teachers may receive a very inadequate introduction to the subject (145). Training sessions for the classroom teachers are usually short—in the Philippines, for example, less than one week, compared with five weeks for the supervisors (19). In such short sessions it is impossible to address all aspects of population education (62, 232). In addition, providing face-to-face training for all teachers requires training facilities and personnel, payment of travel expenses, and considerable time either during the school year or during holidays.

A variation is **peer training**. In Indonesia and Sri Lanka teacher-trainers in each school are being trained in population education so that they can train other teachers in the school (72). In Thailand peer training is underway. Some 2,500 teachers trained at regional institutes are expected to train other teachers in their schools (56). This approach requires strong motivation on the part of teacher-trainers and is limited by many of the same difficulties that limit other face-to-face training strategies.

Because of these problems, Malaysia developed self-learning booklets in the mid-1970s in order to reach all teachers directly with an "unadulterated" population education message (116). Called **Self-Learning Educational Modules (SLEMs)**, the booklets usually include a list of learning objectives, descriptions of major issues, questions (with answers supplied), a glossary, and a reference list.

CONSEQUENCES OF THE DEMOGRAPHIC SITUATION



Self-Learning Educational Modules, or SLEMs, have been used to speed the training of in-service teachers. A diagram from a SLEM for Malaysian teachers shows the impact of national population growth. Source: Malaysia. Curriculum Development Center. Population self-learning package for teachers. Malaysia, Ministry of Education, [1980]. (455)

Population Education in Egypt

As part of the national population program in Egypt, in 1970 the Ministry of Education began efforts to introduce population issues into the school curriculum. The first step was a survey of existing texts to determine how well they covered population-related topics. Between 1974 and 1976 population topics were integrated into a number of existing subjects. In 1977 a small Office of Population and Environmental Education (OPEE) was established (292).

To date, OPEE has concentrated on developing background material and curriculum guides and particularly on orienting supervisory personnel (292). For instance, 23 different booklets have been prepared describing the major concepts and methods of population education. Also, 15,000 copies of an Arabic edition of Lane and Wileman's *A Structure for Population Education* were distributed to Egyptian educators (109). The book includes a detailed content outline, list of objectives, and reference list (110). Implementation in the schools has been limited.

Training of key personnel has involved three approaches: (1) overseas study tours, (2) correspondence courses, and (3)

national workshops funded by the US Agency for International Development. OPEE staff members were sent on overseas study tours. District supervisors and interested teachers take the year-long correspondence courses. The courses present a detailed overview of the economic and environmental effects of population growth. Each 10-day workshop (held yearly since 1977) involves as many as 60 district supervisors, teacher trainers, and teachers who have completed the correspondence courses. The workshops have been jointly led by the Egyptian population education staff and population education consultants. They have used a variety of approaches. The 1979 workshop, headed by Byron Massialas, involved lectures by Egyptian officials and a series of small-group activities that introduced participants to teaching strategies (126). The 1980 workshop, headed by Mary Turner Lane, focused on the content of population education, clarifying relationships with development and environmental issues. In addition, participants were helped to develop complete lesson plans for classroom use (111). The 1981 workshop, described below, emphasized new teaching techniques.

Introducing New Teaching Methods: A Workshop

Elaine Murphy, Ph.D., Director of Population Education, Population Reference Bureau, Washington, D.C.

The 1981 training workshop in Alexandria, Egypt, was jointly led by Mohammed Gamil, Supervisor of the OPEE, and by Elaine Murphy and Patricia Cancellier of the Population Reference Bureau (PRB). The main function of the workshop was to help participants adapt methods and materials developed in the US and elsewhere to suit Egyptian schools. The 45 participants, all former teachers, were district supervisors of various disciplines. They were expected, after taking the course, to organize similar workshops at the district level for classroom teachers.

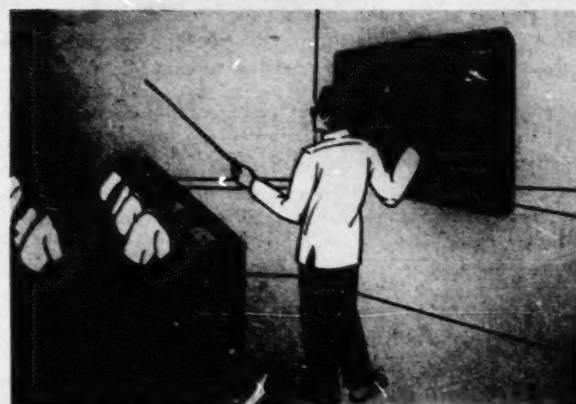
Workshop participants were introduced to a variety of teaching methods using the "inquiry approach." The inquiry, or discovery, approach departs from the tradition of having students memorize facts and figures. Instead, students inquire into the causes of a situation and draw conclusions from their own investigations and analyses. During the 1981 workshop, participants practiced inquiry-based approaches for primary or secondary school classes:

- **Small-group work.** The participants were given data on the growth of Egypt's population since 1800. Their assignment was: "Using inexpensive, locally available materials (such as seeds, beans, and poster board), work in small groups to develop a way to illustrate how Egypt's population density increased between 1800 and 1980." One group drew four rough maps of Egypt on poster board and labeled them 1830, 1880, 1930, and 1980. The group then placed progressively larger numbers of dry beans within the borders of each map to show increases in population density. The activity, including each group's demonstration and practical critiques by the whole group, took about two hours.
- **Simulations.** A simulation illustrated the dynamics of population growth. A fish bowl represented the earth, a

cup of water poured into it represented annual births, half a cup of water taken out represented annual deaths, and a large water bucket, from which "births" were drawn and to which "deaths" returned, represented "the great beyond." Participants were asked to draw conclusions from the simulation. The educators noted that high birthrates and low death rates result in obvious population growth—a rising water level. Thus the speed of growth was dramatically illustrated.

- **Making tables and charts.** An important aspect of population literacy is using graphs and tables. One activity involved selecting four slowly growing countries and four rapidly growing countries from PRB's *World Population Data Sheet* (an annually published chart that lists 14 demographic variables for most nations). To compare the two types of countries, participants developed a table that illustrated differences in key variables—for example, life expectancy, infant mortality, and gross national product (GNP) per person. They were then asked to make generalizations from their tables. Finally, participants discussed not only the generalizations but also the usefulness of such student-centered work in Egyptian schools.

Other workshop activities included: the use of pictures or articles to stimulate discussion of population issues; collection and classification of old sayings and traditions that encourage or discourage large families; "values clarification," in which a series of statements about family size—for instance, "I think that the government should reward people for having small families"—were distributed and participants expressed and discussed their opinions; and role playing, in which participants acted as members of a local population planning council trying to develop strategies to reduce the birthrate in their community.



A UNESCO slide and tape show introduces teachers to population education and basic demography. The show points out that taking a community census is a practical way for students to learn simple demographic concepts (left). A diagram can help the teacher point out that the quality of life is best when population size and available resources balance (right). UNESCO Regional Offices can provide materials like these.

While inexpensive, SLEMs provide little personal interaction for the teachers. Whether this is good or bad may depend on custom. In a pilot test involving 50 Malaysian schools, the self-learning approach was modified somewhat. Headmasters were trained as "module managers" to supervise and monitor teachers' progress with SLEMs. Each headmaster conducted nine 2- to 3-hour sessions for 15 teachers in which they led discussions, answered questions, and evaluated oral reports. Two difficulties arose: (1) Most headmasters were not confident of their own knowledge of population education. (2) The interaction expected between headmaster and teacher was unfamiliar, since the headmaster had to depart from his usual authoritarian role. This made both teachers and headmasters uneasy (94). The opposite problem occurred in the Philippines, where teachers, used to personal interaction and guidance in learning, found independent work difficult. Still, the Philippines Population Education Program concluded, in a study of 540 primary school teachers, that SLEMs provided an "effective alternative . . . to face-to-face training" (246).

Correspondence courses have been used less often than face-to-face training and SLEMs. Little has been reported about their effectiveness. In Pakistan an 18-unit correspondence course has reportedly been used to train half of the nation's 100,000 primary school teachers (56).

The reports available indicate that all four strategies can be used to prepare teachers to present population issues in the classroom (232, 611). Because each has different advantages and disadvantages, programs tend to use a method, or sometimes a variety of methods, that suits the financial and administrative capabilities of the program.

In-Service Training Problems

Whatever the training method, evaluations of teacher training show that teachers often do not learn enough to feel confident of their ability to prepare population education lessons. In a 1980 survey of 270 Philippine primary school teachers who had received up to five days of training, 62 percent felt that the training in population education had improved their teaching ability. Fifty-four percent felt that their lack of knowledge was still a serious or extremely serious problem, however (62).

The brief training received by most teachers often does not prepare them to use innovative teaching methods such as the inquiry approach and values clarification (see p. M-204).

Teachers in the Philippines found that the discussion and question-and-answer methods suggested in curriculum guides were difficult to use. Observers noted that teachers tended to "rely heavily on the printed page" and, in many cases, to be "unable to handle student discussions" (17). Moreover, brief training may not be enough to prepare teachers to answer questions not covered in the official curriculum. For instance, although the Malaysian program does not include sex and family planning topics, pilot tests showed that some units, such as "Population Change, Its Determinants and Consequences," stimulated questions and comments from students about sex and family planning for which teachers were unprepared (94).

Initial training should be bolstered by continuing help and encouragement. In the Philippine survey of teachers over 45 percent wanted more help learning population content, applying new teaching methods, using materials, and evaluating students (62). Such help could include a regular newsletter, complete sample lessons, and advice from supervisors or department heads. In South Korea radio broadcasts for teachers supplement population education training (205).

Overall, many teachers in developing countries are burdened by large classes, poor facilities, and a lack of materials (8). Classroom teachers need extensive training, support, and strong personal motivation to undertake additional tasks.

Pre-Service Training

Pre-service training may be even more important to the long-term effectiveness of a population education program than in-service training. There is a shortage of well-trained teachers in most developing countries (8, 357). Yet the number of school-age children will increase for at least the next decade. Thus teacher training institutions will have to produce more graduates to meet growing needs. If all current and future teacher trainees learn about population issues as a routine part of initial training, population education could be institutionalized in school systems at a minimal cost.

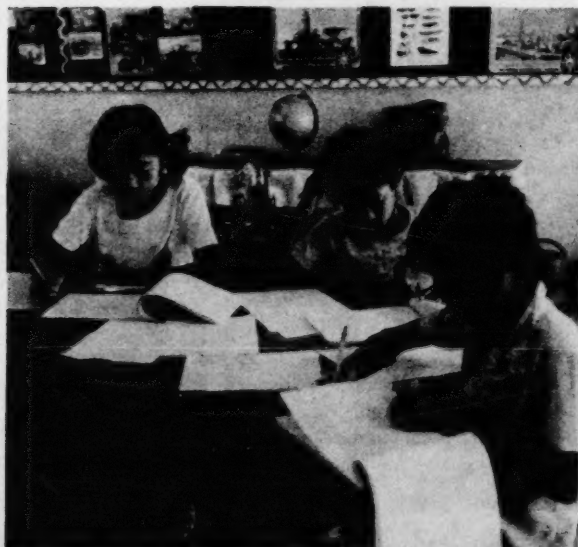
Despite the importance of pre-service training, in most countries it has not received as much emphasis as in-service training. There are at least two reasons for this: First, pre-service training is rarely under the direct supervision of population education central administrators. Instead, it is in the hands of universities, colleges, or teacher training institutes. Second, in some institutions of higher education, population education is

not viewed as a legitimate academic or scholarly enterprise. Thus it may be difficult to find qualified and enthusiastic instructors and to obtain administrative support (472).

There are marked variations in the extent of pre-service training. In the Philippines, cooperating training institutions offer a 3-credit course, for which the population education central office has prepared an extensive outline (470). At one university teacher trainees can major in population education. At other institutions, however, a population education course is not required, and in a few, none is offered.

Comparing pre-service training in Singapore, Sri Lanka, and Indonesia, Gnanarajah and Fraser found many inconsistencies (72). In Indonesia a decree from the Ministry of Education and Culture in 1976 made population education mandatory in teacher training institutions (134). Some now offer a well-received population education course in which various lecturers discuss their specialties. In other Indonesian training institutions, however, population education is discussed only as a minor part of a social science program. Sri Lankan teacher trainees are supposed to work through a 15-hour series of population education modules at some point during their training. In fact, some students are exposed to only a few hours of lectures. In Singapore, where population education is supposedly a stable component of primary school curricula, there is no organized population education course offered to teacher trainees (72). This may reflect the strong orientation toward family planning goals rather than educational goals.

The problems of introducing population education into teacher training colleges mirror the problems of introducing population education in schools—inadequately prepared instructors, lack of materials, and limited evaluation of achievement. In Bangladesh population education was introduced in secondary teacher training colleges in 1976–77. A 1979–80 study found that teacher trainees at five colleges learned little about population education during the academic year (a 1- to 3-point gain out of a 25-point total). Although 94 percent thought that they knew enough to teach population issues, 75



Sixth graders in the Philippines use workbooks to learn about the effects of population growth. Student workbooks are valuable classroom aids, but most programs cannot afford to supply them regularly to every student. (Philippines Population Education Program)

percent thought that insufficient time had been devoted to the topic, and 63 percent felt that the population education syllabi were not clear. The nine college instructors involved in the study generally lectured, and only four reported requiring any practical work. The instructors complained that materials were lacking and that no questions about population were included in the final examinations prepared by college officials (362).

In 1980 UNESCO published a survey and analysis of teacher training activities as a guide for preparation of the forthcoming *Handbook for Teacher Training in Population Education, Family Life Education and Sex Education*. Major recommendations were:

- (1) include population, family life, and sex education in the curriculum of training institutions,
- (2) provide teacher trainees with experiences that will build the skills and attitudes needed to teach these topics,
- (3) prepare teachers to take part in other areas of a new program besides classroom teaching, such as evaluation and management,
- (4) involve teacher training colleges in all aspects of a new program, such as curriculum development and in-service training (472).

All of these recommendations involve increasing the role of teachers colleges in the implementation of a new program. Unless teacher training institutions incorporate the subject into their own curricula, the stability of a population education program will remain in doubt.

TEACHING MATERIALS

A major barrier to population education programs is the lack of suitable teaching materials (243). Most programs develop teachers' guides, which list the topics and objectives of each unit and occasionally suggest activities and test questions. Many programs also prepare sourcebooks, which provide background information on population education and population topics. Materials of these types are not much help with classroom activities, however, particularly for teachers who know little about population issues and do not have time to prepare complete lessons.

To be useful in classrooms, teaching materials should suggest specific, feasible activities that teachers can organize quickly and simply. The Family Planning Association of Hong Kong, for instance, published a *Teacher's Handbook for Population Education*. After each chapter the handbook suggests class discussion topics and student activities. For example,

1. Draw graphs of the following, or illustrate them in other, more vivid ways:
 - a) Population growth in Hong Kong since 1935, indicating related historical events if possible.
 - b) Changes in population growth by area distribution, 1911–1971.
 - c) Trends of birth and death rates since the Second World War.
 - d) Projection of population growth in Hong Kong from 1971 to 1991. (401)

Even more detailed materials are used in the Baltimore population education program (see box, p. M-214). Each lesson plan includes learning objectives, detailed descriptions of activities, complete home assignments, and tests. The lessons were developed by teachers and were designed to require as little time and work as possible from the teachers using them. In Baltimore,

Locating Population Education Materials

The material available in population education can be grouped into five categories:

Sourcebooks, also known as handbooks or resource books, may summarize population topics, government policies, and the rationale for population education. Some of these are collections of materials useful for population education although not specifically prepared for this use. Others may discuss particular aspects of the design or implementation of a population education program—teacher training, curriculum planning, or integration of population education into a specific subject. Both types may be designed for a particular audience, but they are generally helpful to planners, curriculum developers, and teachers. Selected sourcebooks are listed on p. M-242 (400–424).

Teacher training materials are generally designed to be used by teachers to train themselves and/or by professional teacher trainers. They range from short units on population education to training manuals for week-long sessions. Selected teacher training materials are listed on p. M-242 (450–473).

Teaching materials are those used in the classroom. They include complete lesson outlines, wall charts, and student texts and workbooks. Selected teaching materials are listed on p. M-242 (500–561).

Lists of references and teaching aids catalogue the materials listed above. Selected lists are found on p. M-243 (600–624).

Newsletters and periodicals in population education report on regional or national developments (for example, the UNESCO/Bangkok Newsletter), discuss a particular topic in depth (for example, the UNESCO/Santiago bulletin *Enlace*), list recent publications, or serve several of these functions.

Many of these materials are produced for use in a particular country or region, but often they are adaptable, especially in the case of teaching materials. Some materials are available free of charge. There are also a number of publications available for those interested in establishing population education reference centers (184, 188, 210, 259–262).

Listed below are the major organizations that prepare or provide these materials and the type of material available from each. In addition, national population education programs generally supply materials that they have developed to interested professionals.

**American Home Economics Association
International Family Planning Project
2010 Massachusetts Avenue, N.W.
Washington, D.C. 20036
USA**

Sourcebooks, teaching materials, reference lists, newsletter.

**International Planned Parenthood Federation
18–20 Lower Regent Street
London, SW1Y 4PW
UK**

Sourcebooks, teaching materials, reference lists.

**Population Reference Bureau
P.O. Box 35012
Washington, D.C. 20013
USA**

Sourcebooks, teaching materials, reference lists, newsletter.

**UNESCO Regional Office for Education
Population Education Programme Service
G.P.O. 1425
Bangkok, Thailand**

Sourcebooks, teacher training materials, teaching materials, reference lists, newsletter.

**UNESCO Regional Office for Education
Servicio Regional de Información sobre Educación en
Población
Casilla 3187
Santiago, Chile**

Sourcebook in preparation, periodic bulletin.

**Zero Population Growth Inc.
1346 Connecticut Avenue, N.W.
Washington, D.C. 20036
USA**

Sourcebooks, teaching materials, reference lists.

where not all teachers have been trained in population education, these teaching materials help make the program work (240).

Teaching any subject, including population, is easier if straightforward, practical, and familiar teaching aids are available. When 133 teachers in Florida (US) were asked what would be most useful to them when they taught population topics, 70 percent wanted simple audiovisual aids, and 68 percent wanted student workbooks (227). Providing teachers with simple visual or audiovisual materials has been stressed by a number of experts. A progress report on the early stages of the Somalian population education program observed that "what schools need and need badly is good visual material in the form of charts, diagrams and pictures, especially in the introduction of new content" (92). The 1981 evaluation of American Home Economics Association projects in Latin America, Asia, and Africa

also recommended better distribution and more use of audiovisual materials (26).

Developing and Distributing Materials

Experience has shown that classroom teachers should be consulted and involved in the preparation of classroom materials (17, 106, 239). This involvement can help to assure that materials will be useful in the classroom and appropriate for particular groups of students. Programs that have hired professional writing teams to develop material—as in India, South Korea, and the Philippines—often have been forced to change the material substantially after it has been tried in the classroom (19, 106, 158). For instance, in the Philippines lessons dealing with human sexuality used standard terms for sexual organs and functions. Teachers attending research utilization conferences explained that, although they were willing to teach human sex-

Philippine Scope and Sequence Chart

The Philippine population education program is one of the most extensive, covering all grade levels and several subjects within each grade. A scope and sequence chart, shown here for the primary school grades only, indicates the population education subject matter in each grade and class.

	Social Studies	Health Education	Elementary Science	Mathematics	
Grade I	I. The Family A. What the family is B. The purpose of the family C. Family size and composition D. Some effects of family size on some needs of the family	I. Effects of Family Size on Basic Needs A. Relation of family size to food, housing and clothing needs B. Effects on family health	I. The Genitals A. Knowing the genital organs that differentiate boys from girls B. Care of the genitals 1. Personal cleanliness	I. Family II. Family Size III. Replacement	
Grade II	I. Population and Population Change in the Schools A. What is population. B. Some characteristics of a population 1. age 2. sex 3. occupation 4. size 5. change C. The school population changes in size over time	I. Family Size and Food Needs A. Family size and quantity of food requirements B. Family size and quality of food requirements	I. Male and Female Characteristics A. Maleness and femaleness of animals 1. Recognizing differences between males and females 2. Names of some male and female animals B. Maleness and femaleness of man 1. Every child a boy or a girl 2. Characteristics that distinguish girls from boys	I. Family II. Family Size III. Birth IV. Dependence	
Grade III	I. Population Changes in the Community A. Change of size through births B. Change of size through deaths C. Change of size through migration	I. Family Size and the Emotional and Social Health of Family Members A. Role of the family in the emotional and social health of its members B. Family size and its effects on emotional and social health	I. Overcrowding (Density) Affects Individual Needs A. Needs and care of living things 1. Effects of overcrowding on plants, animals, and man in terms of individual share of available needs (food, space) and growth	I. Family II. Family Size III. Dependence IV. Birth V. Death VI. Migration	
Grade IV	I. Effect of Migration on Population Growth A. Type of migration 1. Barrio to town, city to city 2. Town to city B. Reasons for migrating 1. Seek jobs 2. Better opportunities C. Effects of migration 1. On the place left 2. On the place migrated to D. Characteristics of migrants	I. Population Size, School Health Personnel and Facilities, and Community Health Service A. Effects of school population on the quality of school health services and facilities B. Effects of population size on the quality of health services in the community	I. Non-Human Population A. Relationship between some animal's capacity to reproduce and some environmental factors B. Balance of nature (Introduction to ecology)	I. Birth II. Death III. Migration IV. Population Status V. Population Growth VI. Age Groups VII. Projections	
	Social Studies	Health Education	Elementary Science	Home Economics	Mathematics
Grade V	I. Family Size A. Family size norm in the Philippines 1. Completed family size B. Factors that promote large family size 1. Custom, practices, beliefs 2. Government measures C. Relationship between family size and population growth	I. Changes in Mortality A. Changes in mortality over time B. Factors that contribute to mortality decline	I. Man's Adaptation to the Environment A. Rate of population growth (RPG) and the use of agricultural lands and forest areas for housing 1. Agricultural lands used as subdivision 2. Forest areas used for housing B. RPG and maximum utilization of resources 1. Improved agriculture	I. Some of the Changes in Boys and Girls at Puberty A. Growth in height and weight B. Development of breasts C. Widening of hips D. Growth of pubic hair E. Menstruation in girls F. Ejaculation in boys II. Significance of some pubertal changes to fertility behavior	I. Population status II. Projection III. Birth Rate IV. Death Rate V. Rate of Natural Increase VI. Life Expectancy VII. Population Density VIII. Dependency Ratio
Grade VI	I. Consequences of RPG on Family and Community A. Economic B. Health C. Food Production D. Education E. Environment F. Socio-psychological II. Planning and Decision Making A. Importance of planning and decision making B. Making a decision on family size	I. Some Consequences of RPG on Community Health A. Some consequences of RPG which directly affect man's health and well-being B. Government's effort to solve problems brought about by RPG	I. Some Effects of RPG on Man's Environment A. Man's rapid population growth may upset the balance of nature 1. Destruction of natural habitats of other living things 2. Overexploitation and/or depletion of resources 3. Pollution B. Need for Conservation 1. Government policies 2. Reforestation	I. Age at Marriage A. Advantages/disadvantages of early/late marriage B. Customs, beliefs, and practices that influence age at marriage C. Laws regulating age at marriage D. Relation of age at marriage to number of children and standard of living	I. Birth Rate II. Death Rate III. Migration Rate IV. Rate of Natural Increase V. Growth Rate VI. Dependency Ratio VII. Life Expectancy VIII. Population Density IX. Population Projections

Source: adopted from UNESCO. Co-ordinated Action Programme for the Advancement of Population Education. Study of the contribution of population education to educational renewal and innovation in El Salvador. Republic of Korea, Philippines and Tunisia. Paris, UNESCO, 1980. (246)

A Lesson for Philippine Fifth Graders

This Philippines social studies lesson is one of five that make up the fifth grade population education unit "Determinants of Family Size." The unit encourages students to examine and question beliefs and customs about family size. A list of influences on family size accompanies the lesson plan.

A. Objectives

1. Explain how the government policies and social practices encourage a large or a small family size.
 - a. State some laws or decrees that influence family size.
 - b. Cite some practices in society that favor a large family size.
2. Examine critically existing beliefs and practices in the light of individual, as well as societal needs.
3. Determine a desirable family size.

B. Content

1. How Government Policies and Social Practices Encourage a Large Family Size

C. Suggested Procedure

Opener

Have the pupils read the following news items from the *Bulletin Today* (July 30, 1973; March 19, 1973).

News Item No. 1

In August, 1973, Singapore started enforcing a new set of laws that would make couples have fewer children. They are the following:

- (1) A couple would have to pay higher hospital bills for every child born.
- (2) Tax deductions or exemptions are for the first three children only.
- (3) An employed mother in Singapore can enjoy paid maternity leaves for the first two children only.
- (4) Couples with two or fewer children will be given the first chance to occupy apartments and housing units.

News Item No. 2

A Spanish couple with 18 children has won a prize of 150,000 pesetas (nearly 3,000 dollars) for being the largest family in Spain. Mr. and Mrs. Rojas said after being given money by the Spanish government, "It follows (because of the prize) that we will have some more children."

Development

Watch the pupils' reactions on both news items. Have them give their comments. Then discuss the items along the following lines:

Compare the new items. Which government favors a small family size? A large family size? What about our government? What does it favor?

Draw out the fact that the trend in our country used to be favorable to a large family size by having the pupils answer the following questions:

How long could a permanent teacher go on maternity leave with pay? How much would she get?

Have the pupil who was assigned to get the desired information report his findings.

Is the maternity leave with pay favorable to having more children? Why? Compare the situation here with that in Singapore. If a female employee or teacher does not get paid when she has her baby, do you think this would affect her family size? How? (Perhaps she would space her babies to reduce the number of children she will have.)

What government policies encourage a large family size?

Draw out the fact that it used to be that all children below 18 years meant a ₱1,000 [\$138 (US)] deduction each for the parents when they paid their income taxes.

Is this still true today?

If the pupils don't know the answer, explain that in Presidential Decree No. 69 entitled *Amending Certain Sections of the National Revenue Code*, the number of dependents who can be considered for exemptions have been reduced to four only for those families who will have additional children born after December, 1973.

Besides the government, our society also favors a large family size.

Discuss the Parents-of-the-Year Award given to U.P. [University of the Philippines] graduates whose many children also finished their courses at the State University; also the giving of prizes to couples with the most number of children during class reunions; the deductions in matriculation fees of sisters and brothers attending the same school or university; etc.

Summing Up

Based on our lesson and discussions today, would you say that some government policies influence family size? What about our own government and our own society?

Lead the children to give the following statements. Write the statements on the chalkboard:

1. Some governments encourage a large family size. Some governments have laws that favor small families.
2. Our government used to promote a large family size. Now it has started to promote a small family size.
3. Some practices in our society promote a large family size.

uality, they found it difficult and embarrassing to explain to students what these standard terms meant. It would be better, they said, to use vernacular terms (341). The relatively new Sierra Leone program is involving teachers in the process of developing materials. Writing teams made up of secondary school teachers develop materials and then revise them after pilot tests (see box, p. M-226).

Population education materials are now available from a number of sources. Population textbooks (347, 353) and pamphlets on population issues (29, 167) can provide general information. Several organizations, including the Population Reference Bureau (PRB), the International Planned Parenthood Federation (IPPF), and the UNESCO Regional Office for Asia and Oceania, prepare and publish complete population education lessons, student materials, and visual aids that can be used as is or adapted to specific needs (see box, p. M-221). In addition, many individual teachers around the world have developed materials that work well in their classrooms. Simple visual aids can be easily prepared. An AHEA Media Resource Book offers a guide to making materials such as posters and flip charts (14). More sharing of specific lesson plans and classroom materials would help to develop a pool of proven teaching materials (143).

After appropriate materials have been developed, there are obvious practical steps to take before they reach teachers and students. First, in many countries materials must be translated into regional languages. In India very few materials were available in Hindi or Tamil (the predominant regional languages) during the 1970s (154), and in the Philippines most materials were originally printed in English rather than in the national language, Pilipino (17). Second, materials must be printed quickly. In Sierra Leone difficulties with the government printing office delayed publication of a population education supplement for the eighth grade social studies course (79). Third, materials must be distributed to all involved teachers. In Indonesia 382 rural and urban secondary school teachers who were supposed to be teaching population education were surveyed in 1979. The survey revealed that only 22 percent had been provided with textbooks on population education and only 21 percent had been provided with teachers' guides. Observers in Asian countries have reported that sometimes new materials reach only the district administrators or at best the school administrators and not the teachers.



The range of population education materials is wide and comes from sources as diverse as UNESCO offices, the Tamil Nadu State Council of Educational Research and Training in India, and the American Home Economics Association. Many of these workbooks, newsletters, sourcebooks, and lists of classroom activities are available to interested individuals who request copies (see p. M-221).

Where education systems provide textbooks, the best way to ensure that all schools receive and use population materials is to see that the basic texts include population content. Virtually all teachers—whether prepared and motivated or not—will teach what is in the basic textbooks. Periodic textbook revisions provide a good opportunity for changes. In Mexico, for instance, population and human reproduction have been incorporated into government-produced texts during the revisions that take place about every five years (11, 49). The revised books are distributed to all school children. In addition, supplemental materials about topics such as family life (48) and the effects of television on children's perceptions of sexuality and sex roles (47) are available to teachers and administrators.

Lack of funds is one reason that teachers and students do not have appropriate classroom materials on population. Providing material to all teachers or workbooks for every student in a national program is expensive. In some countries teachers who want their own guides or tests must buy them with their own money (129, 219, 230). Without useful, reusable materials, whether locally made or distributed by a central unit, population education cannot be fully implemented in schools.

EVALUATION

Like all education, population education programs are difficult to evaluate. As yet there is no accepted system for evaluation (133). Most of the evaluations to date fall into one of four categories:

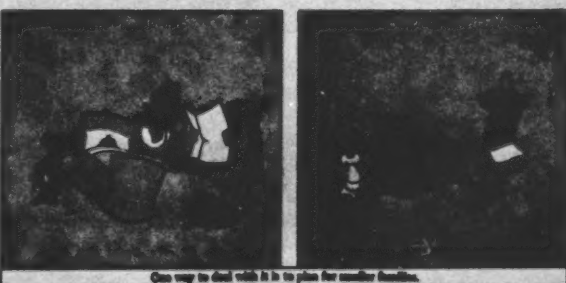
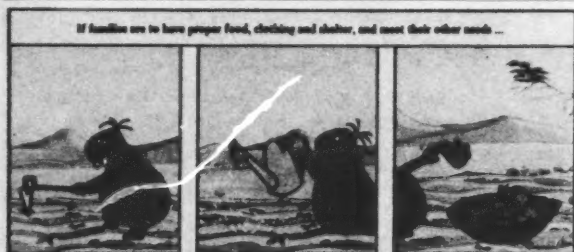
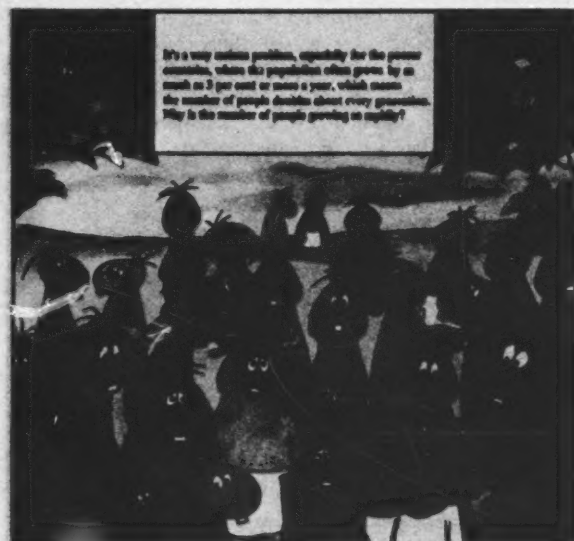
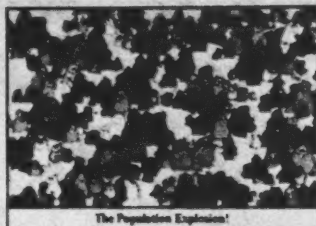
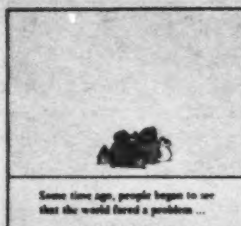
- baseline studies focusing on teacher, student, and community attitudes and curriculum content before the program begins,
- operational research, focusing on pilot tests of curriculum changes, new units, materials, and teacher training strategies (sometimes called "formative evaluation"),
- assessments of implementation, focusing on the extent of teacher training, materials development, and, to a lesser degree, on classroom application,
- measurement of impact on students in terms of changes in knowledge, attitudes, and—in the future perhaps—fertility-related behavior (96, 103).

Baseline studies are usually designed to find out what goals and content would be acceptable to the teachers and the community. Surveys have been undertaken, for example, in India (182, 183, 328), Kenya (81), the Philippines (62), Thailand (229), the US (84), and Ghana (71) (see p. M-213). Qualitative assessments based on case studies have been carried out by UNESCO in Morocco, Peru, Rwanda, and Tanzania (245).

Operational research has been used to pretest curriculum guides, teaching materials, and new training strategies. Most national programs conduct extensive pretesting before any new teaching material is introduced into the curriculum (17, 79, 106, 246). Different teacher training strategies have been compared in Baltimore (67), Malaysia (116), and the Philippines (145) (see p. M-217). Operational research is used in the development of specific materials or activities, and much of it is not published or readily available.

Assessing Program Implementation

Evaluations of program progress have been carried out by funding and technical assistance agencies in many countries. These



The brightly colored comic book 300,000,000 has been one of the most widely distributed population education materials since it was issued in 1975. The book's furry, one-toothed creatures illustrate the relationship between population growth and jobs. Smaller families will help solve the problem, as these excerpts illustrate. But, the book continues, the 300,000,000 job-seekers already born face many problems finding work. The comic book is based on a short film. Both were prepared for the International Labour Organization (ILO) with financial support from UNFPA. Limited numbers of copies are available in English, French, Spanish, or Arabic from the ILO, Ch-1211, Geneva, Switzerland.

Population Education in Sierra Leone

Sierra Leone has the only established national program in Africa south of the Sahara (242), although a program is beginning in Somalia (92) and some planning is underway elsewhere (see Table 2, p. M-232). The Sierra Leone program, funded by UNFPA, aims at integrating population education into the country's new secondary-level social studies curriculum (79).

Implementation of the program began in 1977 but has been limited by both political and educational factors. First, the Sierra Leone government does not officially recognize population growth as a problem, even though the population growth rate increased from 2.2 percent in the 1960s to 2.5 percent in the 1970s (161, 283, 358). Instead, reducing mortality and morbidity, improving population distribution between rural and urban areas, and limiting immigration are stressed (161, 283). Second, educational resources are limited. Government expenditure on education during the late 1970s was less than \$20 (US) per school-age child (compared with more than \$1,000 in many developed countries) (244). Third, well over half of school-age children are not enrolled in school. In 1977 only 37 percent of the children of primary-school age and 12 percent of the children of secondary-school age were enrolled (244). Thus the program will reach only a small percentage of the nation's children.

Creating Awareness

The Institute of Education of the University of Sierra Leone, a government organization, is responsible for the **planning and administration** of the program, including curriculum development, staff training, and materials preparation (79, 143). The ultimate goal is to create a widespread "awareness of the implications and consequences of population growth on the socio-economic development of the country" (79). Specifically, students would

eventually be able to make informed and rational decisions on matters relating to population, like when to marry, how many wives to marry, when to have children, size of family and to make positive moves toward ensuring improved quality of life for their family, community, and nation. (79)

Short-term goals include developing a corps of experts in population education, integrating population concepts into secondary school and teachers college curricula, and training a group of teachers who will organize peer training sessions in schools.

Curriculum planning was simplified considerably by the decision of the Ministry of Education to introduce population education through the new secondary-level social studies curriculum. A 1977 conference concluded that the program should be limited to the first three of five secondary forms (grades 8-10), since students in forms four and five prepare for an external examination (79). The subject matter is primarily population dynamics, population and family life, and population and ecology.

Teacher training is still in the early stages. Five members

of the project staff were trained through overseas study tours and fellowships during 1977-79 (79). Of the approximately 2,500 secondary-level teachers in the country (244), 1,330 have been targeted for in-service training (314). As of 1979 only about 100 teachers had attended workshops that introduced them to population concepts, materials, and inquiry teaching methods (79). Some teachers were introduced to population education through the efforts of an American Home Economics Association (AHEA)-US Agency for International Development (USAID) project. The project, designed to introduce family planning, family life, and some population information through home economics activities, has sponsored training workshops for in-service teachers and worked with teacher training colleges to include population and family planning topics in the home economics curriculum (26, 143). Some of the teachers reached by the project have adapted AHEA materials for classroom use (26). Pre-service training for teachers of other subjects is still in the planning stage.

Teachers Develop Materials

The development of **materials** was the responsibility of a writing team of four secondary-level teachers on assignment with the Institute of Education beginning in 1978. For form one, this team designed a supplement to the social studies text already produced. The text discusses man and his abilities. The supplement adds information on the structure and composition of populations and on family life. This supplement was tested in 24 schools during the 1978-79 school year, then revised and published for national distribution the following year. The basic text for form two, which discusses man and his environment, had not yet been prepared when materials development began in 1978. Therefore the writing team was able to incorporate population content into the text directly, without a supplement. The new text was introduced on a pilot basis in the 1979-80 school year. A draft of a student text and teacher's guide for form three were tested in 12 schools in 1981 (164). Distribution of these materials has been seriously hindered by delays in printing and other difficulties (164).

Evaluation has been limited (79, 314). Teachers' comments on the effectiveness of the materials were used to revise them after pilot testing. Students' knowledge before and after exposure to the new materials was assessed. The results have not been published.

An important development for population education in Sierra Leone is the possible inclusion of population questions, drawn from the project, in the West African Examination Council's widely used exams (314, 355). This would provide standardized assessment at minimal cost of the impact of population education on students' knowledge. In addition, it would encourage and facilitate the development of population education programs by other countries in the region.

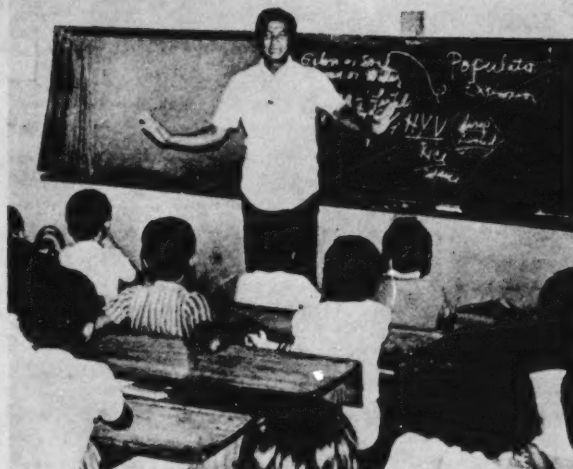
evaluations seek to determine whether plans are being implemented and funds effectively used. Tripartite reviews by UNFPA, UNESCO, and host-government education ministries were conducted in Bangladesh (189), the Dominican Republic (219), India (279), Indonesia, South Korea, Malaysia, Mexico (219), Sierra Leone (164), and Somalia (219) in 1980 and 1981. Tripartite reviews are scheduled for 1982 in Nicaragua, Paraguay, Sudan, and Tunisia (219). These reviews are usually carried out in cooperation with regional offices of UNESCO, and reports are not widely circulated. In addition, UNFPA has supported program evaluations by expert groups in Bangladesh (208) and Sri Lanka (209); evaluation seminars in Togo and Upper Volta (219); and evaluation missions to Benin (219) and El Salvador (213). These tripartite reviews and expert evaluations focus on problems in program implementation. They frequently lead to such specific recommendations as a need for more funding and cooperation with universities in Bangladesh (189) and the need for more training of key personnel and provision of UNESCO reference materials in Sierra Leone (164).

A number of general reviews, called Needs Assessments, were undertaken for UNFPA during 1978-81 to determine the overall needs of national population programs. Conducted by international teams of population experts, these reviews usually include a brief summary of population education activities to date and recommendations for further action. Needs Assessments reports that discuss population education are available on a number of countries, including Bangladesh (290), Egypt (292), India (293), Indonesia (294), Kenya (299), South Korea (in draft) (313), Malaysia (301), Nepal (305), Pakistan (373), the Philippines (311), Sri Lanka (315), Thailand (320), and Tunisia (324).

Many of these reviews have stressed the need to develop or expand a cadre of population education experts in the government or universities to work on curriculum development and textbook revision (292, 294, 299, 301, 305, 313). Study tours to see programs in other countries have been cited as an effective way to stimulate the interest of educators (292, 299, 301, 313) and to develop the necessary high-level support (301). Reviews also recommended the expansion of teacher training in Egypt (292), Nepal (304), and Pakistan (373), where programs are just beginning to be implemented, as well as in Korea (313), where three days of training in new teaching techniques was not considered sufficient (313), and in Sri Lanka, where the peer training strategy was not considered extensive enough (315). Ministries of education were urged to develop simple, locally appropriate materials and strategies for the classroom, ranging from textbooks in Indonesia (294), Kenya (313), South Korea (313), and Nepal (303) to visual aids in the Philippines (311) and Pakistan (373) and educational television in Egypt (292).

Evaluating Classroom Application

Program directors and funding agencies continually try to find out whether programs are reaching the target population, but in the field of education this is particularly difficult. Most of the time teachers work independently, and constant supervision is impossible. Moreover, as in family planning programs, estimates of the number of people reached and progress reports made by supervisors are often overly optimistic. Measuring the extent of implementation is necessary, however. If the program has not been implemented, any study of program impact or effectiveness may be an attempt to study a nonevent (75). Thus, just as contraceptive prevalence surveys have been developed to measure the impact of family planning programs, so also population education prevalence surveys might be useful to estimate the extent of population education in the classroom.



Students often gain knowledge when studying population issues, but changes in attitude are less common. Here a visiting agricultural worker tells Philippine third graders how population growth affects food supply. (Philippines Population Education Program)

In the Philippines reports differ on the extent of classroom implementation. In 1979 the UNFPA Needs Assessment team noted that "teachers seem to devote very little time to population questions in the classroom, according to a PEP [Population Education Program] survey and independent evaluations" (311). One explanation was that teachers' guides were too detailed and academic and that the textbooks did not contain enough population material (311). In a 1980 survey of 270 primary school teachers and 68 administrators, however, more than 30 percent of the teachers reported that they were "involved in helping to implement" the program to a great or very great extent; 51 percent reported that they were involved "to some extent" (62). About 62 percent of the teachers reported that they integrated population into existing subject areas. Over half deviated slightly (46 percent) or significantly (about 8 percent) from the prescribed daily subject matter and teaching strategies, compared with about 45 percent who followed them very closely (62).

The main reasons that the Philippine teachers gave for accepting and implementing population education were that the project was a response to government concern about population problems (48 percent) and that there was a need for the project to help solve population problems (31 percent). The main obstacles were lack of time in the curriculum, inadequate knowledge of the subject, and lack of funds (62).

The Indonesian program, which, like the Philippine program, has been underway for almost a decade, also has had some problems with implementation (75). A survey of 382 junior and senior high school teachers in rural and urban areas of Jogjakarta province found that about 40 percent never taught population education in their classes, while about 35 percent often or regularly integrated population with other topics or gave relevant assignments (75).

The Indonesian teachers most likely to teach about population were those who had been exposed to the field through training, access to materials, and classroom supervision of their teaching. About 25 percent of the teachers had taken special pre-service training, and 22 percent had taken in-service training. About 20 percent had received textbooks or teachers' guides

Population Education in India

Although population education was first discussed in India in the late 1960s, implementation has been limited. The National Council of Educational Research and Training (NCERT) sponsored a national seminar in 1969 (137), which concluded that population topics should be taught at all grade levels. The proposed emphasis of the Indian program was described by the Minister of Education:

Population education, at least as I see it, is primarily a motivational force for creating the right attitudes to family size and the need for family planning and should not be mixed up with sex education or knowledge of family planning methods. (193)

In practice, establishing population education courses in Indian schools has proved difficult. Each of the 22 Indian states operates an essentially autonomous educational system, often using different languages. Also, cultural diversity as well as the large size and population of the country have made curriculum development and teacher training a massive and still unfinished task. A 1980 survey found that, although a few states had incorporated population issues incidentally into their curricula, comprehensive, statewide programs had not been carried out because of lack of materials and trained teachers (154).

After the 1969 seminar **planning and administration** of population education efforts were assigned to a small population education cell within NCERT. Discussions of population education continued throughout the 1970s but without serious efforts to establish pilot programs in schools (89).

In the late 1970s the Ministry of Education and NCERT began making plans to introduce population education in all Indian schools except in the most remote states and territories. The Indian government and UNFPA agreed on a 3-year, \$5,322,000 (US) program beginning in April 1980. Workshops (158) and a survey of state population education activities (154) were carried out to evaluate program needs. The objectives of the program include establishing state population education cells, developing prototype curricula, publishing a quarterly newsletter, and preparing instructors to train classroom teachers (85). Ten states began implementing the project in 1980, and nine more states began in 1981.

Sample curriculum outlines and guidelines for **curriculum planning**, published throughout the 1970s, can be adapted for state use (130, 157, 191). Most of these publications follow the UNESCO-Asian pattern of identifying major pop-

ulation concepts and their subconcepts and then describing how they can be integrated into established school programs. Many omit human reproduction and family planning because educators fear community reaction (343).

So far, **teacher training** in population education is available in only a few Indian universities. For instance, Sri Venkateswara University in Tirupati (which has a Population Studies Centre) has included population concepts in some courses and has offered special workshops and short courses (153). At present, the 19 states involved in the UNFPA-funded program are planning comprehensive training programs for their teachers.

Materials developed by NCERT, Sri Venkateswara University, and the Family Planning Association of India include sourcebooks on general population issues (408) as well as sourcebooks relating population to nutrition (412) and to the quality of life (407). A bibliography of population and population education readings (610) and some sample teaching materials also have been prepared. Most teaching materials were designed for secondary school use and often consist only of simple suggestions for classroom activities or short objective tests (15, 156). One of the few teaching aids designed for primary school classes is a collection of stories, poems, and short lessons about population and family life (534). How extensively these materials have been used during curriculum planning or in classrooms is not known.

Evaluation in the 1970s focused on population awareness and/or attitudes toward population education among students, teachers, and parents (183, 196, 266, 328) and on family size preferences of children (182). These studies indicated that surveyed students, teachers, and parents were aware of India's population problems and generally approved of discussions of the problems in schools. Despite this awareness, most students and teachers wanted three or more children. In addition, many teachers did not feel qualified to teach about population.

In 1981 a tripartite review and an annual country review pointed out the need for (1) more time to implement the program, (2) more funds, (3) better coordination between state population education cells and other education divisions, and (4) more effective guidelines for the cells (279).

on population education. To a lesser extent, acceptability of population education (including student interest, community approval, and administrative support) also influenced the extent of implementation. Demographic characteristics of the teachers, their experience, and job satisfaction were not related or were only slightly related to the extent of implementation (75).

The implementation of educational innovations depends upon many factors. Research in the United States suggests that strong local and community involvement is important during educational change (22). In countries such as the Philippines, however, centralized educational systems appear to be able to win cooperation and support of teachers (62). The few available studies suggest that implementation by teachers depends largely on adequate teacher training in the subject, ample class-

room materials, and sufficient time in the curriculum. These three basic needs are far from being fully met in most programs.

IMPACT ON STUDENTS

The ultimate test of population education is impact on the student. Very few evaluations have tried to assess the effects of population education on students, particularly on students' attitudes or behavior with respect to fertility. There are several reasons for this gap:

- Many programs are relatively new. They are only now moving beyond the planning stage and actually teaching population in the classroom.

- Identifying the impact of specific subject matter or lessons is difficult, since many other factors also influence students' knowledge, attitudes, and behavior (131, 180).
- Considerable time may pass between attending school and making fertility-related decisions. Thus a decade or more may be necessary to find out whether in-school education influences later attitudes and behavior.
- Evaluation and research in population education has not received "the attention and support that it deserves from policy makers, decision-makers, and key administrators in education" (96). The growing interest of the World Bank and the proposed UNESCO/UNFPA *Review and Comparative Assessment of Significant Country Population Education Experiences* (372) may focus more attention on the need for adequate research methodologies and evaluation.

Of the few relatively thorough evaluations of program impact, two took place in the Philippines, one in South Korea, and one in Baltimore, US. Some information also is available from Sri Lanka, Bangladesh, and Colombia, but generally data describing the impact of population education on students are meager.

The Wesleyan Population Center in the Philippines (WPC), with support from the Pathfinder Fund, began developing population education materials in 1970. The material was tested at grade 4 though college level as part of such courses as social studies, science, health, history, economics, and sociology. A total of 48 teachers and 1,836 students in five primary schools, five secondary schools, and six colleges participated. Pilot classes were monitored throughout the 1973-74 school year by (1) observation of classroom experience, (2) questionnaires and meetings to assess teachers' reactions to the materials, and (3) achievement tests to measure students' performance before and after courses (17).

The Philippine Women's University Population Education Center (PEC), funded by USAID from 1970 to 1972, developed population education units for grades 6 and 10 (fourth-year high school) to be included in health, science, physical education, and social studies classes. After seven months, classes using these units in 158 schools in Central Luzon, Greater Manila, and the Visayas were evaluated. Students took a 60-item multiple choice test. Random samples of 50 students and 50 controls who had not studied population education were compared. Changes in attitude were not measured (17).

The Korean Educational Development Institute (KEDI) has conducted several evaluations of curriculum and teacher training to assess both teacher and student reactions. One pilot study was conducted in 1976 in grades 4, 5, and 6 of 15 primary schools and all grades of 16 middle and 17 high schools, including large and small city schools, rural schools, and boys', girls', and coed schools. In each school one experimental and one control class was used—a total of 144 classes. The study analyzed (1) written tests to measure students' achievement, (2) teachers' opinions of the curriculum, (3) observations of the material in use in the classroom (106).

The Urban Life Population Education Institute in Baltimore, US, has developed four population education units. One of these, the *B-More Baltimore!* unit, has been a regular part of the ninth grade social studies curriculum since 1975. In the fall of 1978 questionnaires and tests were administered in seven schools to 908 students who had taken the course and to 205 students of the same age who had not. Evaluated were students' demographic and other knowledge about the city of Baltimore, attitudes toward the city and suburbs, and behavior in utilizing

city facilities and services. In addition, 62 students were interviewed to learn their reactions to the unit (181).

These and other studies suggest three major conclusions about the effects of population education on students:

- Student knowledge of population issues increases as a result of studying a population unit.
- Some of the basic demographic concepts and methods of studying population issues are difficult for students to understand.
- Changes in attitudes seem to occur less often than changes in knowledge.

Knowledge Changes

All four studies found significant increases in knowledge about population issues when students in the program were compared either with control groups (PEC, South Korea, Baltimore) or the same students before taking the courses (WPC).

In three studies younger students—those in primary school—seemed to learn more than those in higher grades. In the Wesleyan Center study primary school children scored higher in both knowledge gain and attitude change than the high school students (17). Similarly, in the PEC study the younger students did better (17). In the Korean study, primary school students studying population education consistently outperformed the control group. Substantial gains in knowledge among the younger students may reflect the fact that primary school is the first time these children become aware of population issues (106). By middle school or later, the topics may have been discussed in other courses or situations, and so initial knowledge is greater.

Students appear to find some population education units difficult. In South Korea the population education units include many complex points. Students had particular difficulty with the concepts of growth rates and migration ratios. The Korean evaluators suggested that, to make the subject easier to understand, difficult concepts should be illustrated with local examples (106). In another study Philippine high school students who had studied population and sex education for 2½ months in an experimental curriculum were found to dislike a number of topics, either because they were embarrassing or because they were difficult to understand (17). Certain basic terms—for instance, "rate"—proved especially difficult.



Philippine primary school teachers work in small groups during an in-service training session. Training is most useful when it involves practical activities. (Philippine Population Education Program)

RECOMMENDATIONS FOR IMPROVING POPULATION EDUCATION

Based on the overall experience to date, the following specific proposals are suggested to carry out and improve national population education programs:

Planning and Administration

- Establish a population education unit at a high level in the Ministry of Education, with authority to plan, develop, and implement the program and to cooperate with other public and private agencies (133). A curriculum development unit alone may not be enough.
- Orient high-level personnel to population issues and to the nature and goals of population education. This will help to build support for and facilitate implementation of programs throughout the school system (109).
- Issue clear directives to managers and supervisors at provincial and lower levels and follow up as required, using workshops and other means to explain the new program and to insure implementation at the local level.
- Develop programs for primary schools, where enrollment rates are highest (109).
- Start new programs on a small scale, with only a few grades and/or classes involved, then phase in new material gradually (348).
- Allow ample time early in the development of a program for pilot tests in the classroom of curriculum changes, teaching materials, and methods.
- Work with testing agencies to incorporate questions about population issues into regional or national achievement exams (121, 311, 370).
- Assess out-of-school educational activities to assure that in-school programs support and expand rather than duplicate these activities (243, 338).
- Work closely with nongovernmental agencies, religious groups, community leaders, and others to build support for the program (89, 350).

Curriculum Planning

- Whenever possible, time the introduction of population education to coincide with overall curriculum revision so that population topics can be introduced directly into the standard textbooks and teachers' guides as they are revised (350).
- Involve classroom teachers in deciding how and when population issues should be introduced in various subjects (239).
- Focus on a few basic issues at the primary school level, such as how families grow and the need for planning in daily life, and leave more complex ideas for higher grade levels (50, 51).
- Organize special events or activities to promote population education. Such activities could include exhibitions, special "population days," essay contests, or "population oratorical competitions" for secondary school students (133, 361).

Training Teachers

- Provide at least one week of training and preferably more, with much personal contact between trainers

and teachers (62).

- Give teachers practical training, such as developing lesson plans or making simple visual aids (472).
- Provide continual opportunities for follow-up of training courses and for refresher training (205).
- Develop required courses in teacher training institutions early in program development so that in-service training needs can be reduced (472).
- Use radio broadcasts aimed specifically at teachers in order to supplement more traditional approaches (205).
- Encourage teachers at all levels to be trained in population education so that the field is not limited to experts but is recognized as a subject that everyone should know about.

Materials

- Provide detailed classroom materials for teachers to use, such as lesson plans, descriptions of teaching methods, and textbooks (240).
- Integrate population content into basic textbooks and teachers' guides, since these are more likely to be widely distributed and used in the classroom than any supplementary material.
- Provide teaching aids, especially student booklets, workbooks, and visual materials, that can help teachers to explain difficult concepts (26).
- Keep materials as simple as possible, in the local language, and using examples relevant to the community (154). The basic objective should not be to train demographers, but to give all children some familiarity with population issues that they will face.
- Develop additional channels for sharing population education materials among countries, regions, and individuals (143).
- Where radio or television is used in the classroom for other subjects, use it for population education as well (368).

Evaluation

- Conduct research studies to evaluate new teaching techniques or materials before they are introduced widely in the schools. Then revise curriculum plans or materials as indicated (258).
- Survey teachers to find out how much population content is actually taught in classrooms. If the level of implementation is inadequate, find out what is needed to implement the program fully (75).
- Assess the effects of various population units on student achievement to determine what types of units communicate important concepts most effectively (10).
- Experiment with methods of measuring attitudes and attitude changes—for example, asking students to imagine themselves in a specific population-related situation that would require them to choose a course of action (27).
- Recognize that the success of a program depends on strong government commitment to population policy and on stable leadership at a high level.

In Bangladesh a study of 557 fourth and fifth graders in 19 schools found little change in knowledge between January and December 1979. Scores in tests on both the population topics and the subject in which they were incorporated increased by only one to three points (363). From the report of the study, it is not clear how much time was spent on these subjects or how they were presented, however.

Attitude Changes

Two of the studies tried to evaluate changes in students' attitudes. The Wesleyan Center study found that Philippine students changed their attitudes about family size. The number of students who preferred small families (0-4 children) "increased remarkably" after taking the course. The change was greatest among primary school students (17).

The Baltimore study reported a number of changes in students' attitudes. As expected, and most importantly, those who had taken the *B-more Baltimore!* unit had more negative attitudes toward population growth than the control group students. The other attitude changes concerned feelings about Baltimore. One-third reported more positive feelings about the city after completing the unit, while two-thirds reported no change. Surprisingly, however, compared with the controls, more of the students who had taken the course thought that the city was small and less exciting. They were more likely to consider the suburban areas of the city more pleasant than their own neighborhoods (181). Perhaps because the unit taught them about problems in Baltimore, it made them more critical. Almost half said that "improvements in the city would have made the experience of studying it a better one" (197).

A 1968 study of a pilot program in Colombia found that, along with knowledge gains, family size preference decreased from an average of about 3.1 to about 2.75 (30, 32). The impact of this attitude change on behavior is questionable, however. As the investigator, David Burleson, points out:

Changes of this magnitude, I believe, document the development of greater population awareness. There is no guarantee that the change will become the subjects' family model. It is totally naive to expect that a short course of population dynamics in high school can have a permanent effect. However, if this impact were to be reinforced in other courses throughout the secondary school experience, a major restraint on rapid population growth might result. (30)

A 1981 UNFPA-supported evaluation of the Sri Lankan program, while it did not measure changes in knowledge or attitude, did show that students may be concerned about population problems even though their demographic knowledge is slight (209). Of the 142 tenth grade students questioned, only 11 percent correctly answered as many as 5 of 11 questions, primarily on the population of Sri Lanka. Fifty-one percent, however, thought that rapid population growth or large family size could hamper economic development. The low levels of knowledge may be due to the fact that the in-school program was not implemented between 1977 and 1980 even though general information, which may have influenced attitudes, was circulated through mass media and out-of-school programs.

Behavioral Changes

Whether population education should be expected to change fertility-related behavior is a debatable question. Courses such as mathematics, social studies, and home economics are not evaluated in terms of changing student behavior, especially specific actions after leaving school. In fact, only a few courses

of a very practical nature, for example, drivers' education for adolescents, have been evaluated to show a measurable influence on later behavior (203).

On one hand, many educators argue that population education should not be evaluated in terms of changing fertility because it is a large and complex subject (40, 163, 180, 338, 365). Some would separate population education entirely from family planning programs. The goals of population education would be set in terms of educational objectives such as gaining knowledge, understanding, and skills rather than in terms of behavioral objectives (see p. M-211).

On the other hand, many of the governments that have established population education programs have done so in support of explicit national policies to reduce population growth. Much of the international support for population education has been provided for the same reason. Donor agencies often expect programs to show quantitative results in terms of mortality, morbidity, birthrates, or contraceptive use. Public health or family planning programs tend to be rigorously evaluated, and the results, widely distributed, so that policy-makers and funding agencies can find out whether the programs do in fact make a difference.

This can create a conflict of priorities. Population agencies with limited funds may be reluctant to support programs such as in-school education that do not show a quick, measurable, and cost-effective impact on fertility. Educators, for their part, may be reluctant to use scarce educational resources to introduce a new subject that is potentially controversial and may be intended to support government population policies more than to meet the goals of the educational system. Maintaining interest and support for population education in the face of these different and sometimes competing concerns is a challenge.

Improving Population Education

Clearly it is too early to offer any final assessment of population education programs in the formal school system. Nevertheless, at least two basic points should be kept in mind in evaluating such programs. First, as extensive international evaluation of education programs has shown, the low quality of schooling remains a problem in many developing countries (357). The difficulties that have plagued population education programs have been found in every other area of education. These difficulties include: teachers who are not adequately trained; classroom teaching materials that are in short supply and of poor quality; and content that is poorly presented and difficult for students to understand (357).

No one would argue that, because of these deficiencies, schools should be abolished. No one would argue that, because children score low on exams in reading, writing, or arithmetic, these subjects should be dropped. If population problems are a serious concern—as they are in many parts of the world—they should be considered in the school curriculum. What is necessary is to find the best and most cost-effective ways to present these issues in a school setting. To do so requires more and better evaluation of existing approaches. Such evaluation is necessary—not to find out whether population topics should be included—but rather to find out how to include them more effectively, so that teachers and students both will be able to understand, to discuss, and to act rationally and responsibly on issues that are important to them, to their communities, and to their countries.

TABLES

**Table 2. Current Status and Major Characteristics,
Selected New or Small Population Education Programs and Projects**

Region, Country, & Ref. No.	History & Current Status	Govern- ment Popula- tion Policy & Year Adopted ¹	Participating Agency(ies)	Curriculum			Personnel Training	Materials Develop- ment	Evaluation ²
				Content Emphasis	Grade Levels	Subjects Used			
ASIA & PACIFIC									
China, People's Rep. of (58, 263, 310)	Implemen- tation be- gan, 1980; expected completion, 1982.	A 1962	First Depart- ment of Gen- eral Edu- cation of Ministry of Education	Importance of family planning and late marriage	7-8	Biology, ge- ography, hy- giene, physi- ology, political study	10-day courses for administra- tors; some middle school teachers to receive one-month in-service training.	Audiovis- ual aids, reference materials, teaching materials for 10 pilot schools	NA
Fiji (220, 266, 270, 278)	Some pop- ulation concepts in primary school cur- riculum	A 1962	Curriculum Development Center of Ministry of Education	Population trends and effects, fam- ily planning, human repro- duction, pop- ulation and ecology, fam- ily life	9-12	Basic science, social science	NA	NA	NA
India (85, 278, 279)	NCERT ³ workshops and curric- ulum study since 1970; UNFPA funding since 1980.	A 1952	Education de- partment in each state, with help from Population Education Cell of NCERT	Population trends and effects, fam- ily life	All (plan- ned)	Pilot efforts in all subjects	Varies by state	Student workbooks, reference materials, audiovisual aids, teach- ers' man- uals (mate- rials vary by state)	Curriculum sur- veys, 1973 (154), surveys of stu- dent knowledge, attitudes, 1975 (196), 1977 (328); UNFPA needs assessment, 1979 (293); tri- partite review, 1981
Nepal (159, 160, 304)	Textbook revision in mid-1970s incorporated some pop- ulation con- cepts; UNFPA funding since 1981.	A 1966	Tribhuvan University (Institute of Education and Curriculum Development Center); Cur- riculum, Text- book, and Supervision Development Center of Min- istry of Edu- cation	Population trends and effects, fam- ily planning	Plan- ned for: 1-3 4-7 8-10	Arithmetic, language, so- cial studies Social studies Geography, health, home science	Orientation seminars for project staff	Instruc- tional units for teacher- trainers in preparation	UNFPA needs assessment, 1979 (305); national sur- vey of attitudes and awareness, 1981.
Pakistan (56, 257, 266)	Initial study, 1971-72; seminar, 1973; some population concepts since inte- grated into curriculum; major pro- gram planned.	A 1960	Population Education Cell in Ministry of Education	Population trends and effects	1-10	Geography, health edu- cation, home economics, mathematics, social studies	In-service teacher training by correspon- dence course	Source- book, teachers' manual	UNFPA needs assessment, 1979 (373)

Table 2. continued

Region, Country, & Ref. No.	History & Current Status	Govern- ment Popula- tion Policy & Year Adopted ¹	Participating Agency(ies)	Curriculum			Personnel Training	Materials Develop- ment	Evaluation ²
				Content Emphasis	Grade Levels	Subjects Used			
Papua New Guinea (270, 272)	Some pop- ulation concepts already in syllabus; major pro- gram planned.	B 1968	Population Action Pro- gram in Of- fice of En- vironment and Conservation	Population trends and effects	2-6	Community life	NA	NA	NA
					9	Ecology			
					10	Social science			
					12	Science			
AFRICA & MIDDLE EAST									
Egypt (111, 133, 134, 292)	Curriculum planning and develop- ment began in early 1970s. Some donor fund- ing since late 1970s.	A 1965	Office of Pop- ulation and Environmental Education in Ministry of Education	Population trends and effects	Plan- ned for 1-12	7 subjects	Five 7-10 day teacher workshops, correspon- dence course	Teachers' manuals, model les- son plans	Assessment of popula- tion con- tent in textbooks, early 1970s; evaluations of teacher work- shops, 1978- 1982 (108, 111, 126, 147); UNFPA needs assessment, 1981 (292).
Ghana (13, 52, 143)	In devel- opment since 1972	A 1969	Ghana Home Science Asso- ciation; Min- istry of Edu- cation	Family plan- ning and family life education	In pi- lot stage at 9 schools	Home economics	Home eco- nomics curriculum in all training institutions for second- ary-level teachers in- clude family planning concepts.	Syllabus for second- ary level home eco- nomics, in pilot stage	NA
Kenya (299, 344)	In devel- opment since 1972	A 1966	Christian Council of Kenya	Family life, human repro- duction	Sylla- bus for teach- ers of grades 4-11	NA	Some in- service courses for teachers	Family life syllabus	UNFPA needs assessment, 1979 (299)
Mauritius (166, 514)	Mauritius Family Planning Association has pro- moted pop- ulation education in schools since 1970.	A 1965	Mauritius Family Plan- ning Associ- ation; Insti- tute of Education	Population trends and effects	Pri- mary	Home eco- nomics, inte- grated sci- ence, social studies	One-term course in population and family life at Insti- tute of Education	Booklet for stu- dents	NA
Somalia (91, 92, 283)	Implemen- tation be- gan, July 1981	C ⁴	Ministry of Education	Population trends and effects	Plan- ned for 1-6	Health, hy- giene, sci- ence, social studies	First sem- inar for primary level teach- er-trainers being planned.	Primary- level mod- ules in de- velopment	UNFPA needs assessment, 1979 (316); tripartite review, 1981.
					7-10	Biology, geography			

Table 2. continued

Region, Country, & Ref. No.	History & Current Status	Government Popula- tion Policy & Year Adopted ¹	Participating Agency(ies)	Curriculum			Personnel Training	Materials Develop- ment	Evaluation ²
				Content Emphasis	Grade Levels	Subjects Used			
Yemen, People's Democratic Rep. (173, 174, 284)	National curriculum revision project be- gan, 1976; UNFPA funding since 1980.	C ⁵	Educational Research Cen- ter of Ministry of Education	Population dynamics, family life	Plan- ned for all	Varies by grade	Planned: 2-month summer courses for teacher- trainers; pre-service training and even- ing in-ser- vice training	Primary- and second- ary-level texts with integrated population content in development	UNFPA needs assessment, 1978 (309)
LATIN AMERICA									
Chile (38, 280, 282)	Educational reform in 1966 intro- duced pop- ulation edu- cation; large-scale program designed in 1978-79 not approved by government; program ended, 1979.	C 1979	Ministry of Education	Population dynamics	10 & 12	Social studies	Some training seminars for teach- ers	Teachers' manuals	UNESCO-spon- sored evalua- tion, 1975
Colombia (30, 32, 45, 70, 175, 281, 369)	Initial ex- perimental program, late 1960s; implemen- tation with UNFPA funding, 1972-1976; post-proj- ect activi- ties through 1980. (In Cauca Valley region)	A 1970	Valle Univer- sity Center for Population Research (CUIP), with support from Ministry of Education	Population trends and effects, fam- ily life, en- vironment, sex education	3-11	All	Summer courses for teachers	Teachers' manuals, student modules	Survey of stu- dent know- ledge and at- titude change, 1967-1968 (30, 32)
	Teacher training in family and sex educa- tion, 1979 (300 teach- ers in Bo- gotá)		Colombian Association for the Study of Population (ACEP)	Family and sex education			One-week seminars	Teachers' manual	NA
Dominican Republic (70, 214, 281, 288, 291)	Conceived and funded, 1978; imple- mentation began, 1979.	A 1968	Population Education Project in Secretar- iat of Educa- tion, Fine Arts, and Culture	Sex educa- tion, family life education, ecology, demography	1-6	Natural sci- ence, social science	Workshops for school principals, who then trained teachers; pre-service training at 6 teacher training institutes.	Teachers' manuals, 4 teaching units for primary school teachers	Tripartite review, 1980

Table 2. continued

Region, Country, & Ref. No.	History & Current Status	Govern- ment Popula- tion Policy & Year Adopted ¹	Participating Agency(ies)	Curriculum			Personnel Training	Materials Develop- ment	Evaluation ²
				Content Emphasis	Grade Levels	Subjects Used			
Mexico (11, 46, 47, 48, 49, 60, 287)	Some pop- ulation concepts integrated into texts during cur- riculum re- vision, early 1970s; sex education program funded by SIDA, ⁶ 1976-1980.	A 1974	National Pop- ulation Coun- cil (CONAPO)	Family, pop- ulation, and sex education	1-12	Language, mathematics, natural sci- ence, social science	Several- day work- shops for teachers	School texts with integrated sex, family, and popu- lation ma- terial; teachers' manuals.	NA
Paraguay (170, 281)	Implemen- tation be- gan, 1980	B 1972	Ministry of Education and Worship	Family education	In plan- ning	In planning	Month- long courses for teacher- trainers planned	NA	UNFPA needs assessment, 1979 (308); survey of atti- tudes and family pat- terns, 1980.
NORTH AMERICA									
Baltimore, US (42, 67, 181)	Started, 1971; es- tablished part of curriculum since 1975.	B 1970	Urban Life Population Education In- stitute in Baltimore City school system	Population trends and effects, fam- ily life, urban life issues	6 & 9 9 10 or 11	Social studies Home eco- nomics World cul- tures	1-3 day workshops for teachers	Four com- prehensive units	Assessments of teacher train- ing, 1974 (67); study of student achievement and attitudes, 1978 (181).

Note: For information on funding of some of these programs, see Table 3, pp. M-235-237.

NA = not available

¹ National government population policy from Nortman & Hofstatter (161) except where otherwise noted.

A = government policy is to reduce population growth rate

B = government supportive of family planning for nondemographic reasons

C = government policy either neutral or pronatalist

² Includes evaluation of program impact, tripartite reviews, preprogram assessments, and UNFPA needs assessment missions. Tripartite reviews are joint UNFPA, UNESCO, and host-country agency evaluations of how well a program is progressing towards its established goals. UNFPA needs assessments are 2-week visits by UNFPA staff and consultants to establish the current status and projected needs of population programs, including population education.

³ NCERT = Indian National Council of Educational Research and Training

⁴ Source: UN (283). Information concerning year policy adopted not available.

⁵ Source: UN (284). Information concerning year policy adopted not available.

⁶ SIDA = Swedish International Development Authority

Table 3. External Funding of Selected In-School Population Education Activities

Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded	Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded
ASIA & PACIFIC		India (85)	
Bangladesh (134, 217, 289)	\$1,140,000 UNFPA 1975-1985 ¹ Training—one-week seminars for 66,000 primary, secondary, and Madrasah (religious) school teach- ers and 1,000 university instructors. Some materials development.		\$5,322,000 UNFPA 1980-1983 (Programs vary by state. 19 states have own pro- grams; 10 began in 1980, 9 in 1981. Coordination by National Council of Educational Research and Training.)
China, People's Rep. of (217, 310)	\$500,000 UNFPA 1980-1982 Training—one-month courses for 8,000 middle school teachers. Equipment—modern audiovisual facilities and reference books for 10 teacher train- ing institutes; modern audiovisual aids, books, and instructional materials for 10 middle schools. Re- vise middle school curriculum.	Indonesia (133, 215, 217, 278, 295, 296, 297)	\$1,300,000 World Bank (loan) 1973-1985 ² Training—2-week courses for 240 secondary-level teacher training institute lecturers. 10-day courses for 900 primary-level teacher training institute in- structors. Materials—development and printing of 340,000 textbooks and 85,000 teachers' hand- books.

Table 3. continued

Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded	Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded
Indonesia continued	\$48,000 UNFPA 1977-1981 Training for personnel involved in coordination of projects. \$157,000 UNFPA; \$390,000 Sirami, Church World Service, Oxfam, World Neighbors, Asia Foundation, Family Planning International Assistance 1978-1981 For schools of the Council of Churches. Training—one-week seminars for 150 master teachers¹ and teacher-trainers; one-day sessions for teachers in 1,100 primary and 600 secondary schools. \$120,000 UNFPA 1978-1981 For schools of the Muhammadiyah (an Islamic movement). Training—one-week seminars for 150 master teachers. 3-day courses taught by master teachers for 8,000 primary and secondary school teachers. Materials—one set of prototype materials for each of 4,300 primary and 2,000 secondary schools. \$223,000 UNFPA 1979-1981 For schools and institutes of Islamic Education and Higher Education. Pilot project—development of curricular materials and training seminars for 200 teachers in 5 provinces of Java. Pilot project in some teacher training schools.	Thailand (200, 217, 231, 244, 274, 298, 319)	\$268,000 UNFPA 1972-1975 \$90,000 Rockefeller Foundation 1976-1979 Mahidol University project: Training—some in-service seminars; pre-service population curriculum developed and instituted. Masters degree in population education offered. Curricular materials developed. Research in population education. (Project funding included out-of-school elements as well (i.e., extension worker training and materials development).) \$1,326,000 UNFPA 1978-1985¹ Training—13,000 teacher-trainers. Materials—at least one set of teachers' manual, curriculum guide, and other materials for each school. (Includes out-of-school component.)
Korea, Rep. of (217, 246)	\$1,520,000 UNFPA 1973-1981 Training—3-day sessions for 6,800 high school teachers and 4,500 middle school teachers. Development of pre-service training programs at 11 junior teachers colleges and 15 colleges of education. (Numbers are those actually trained. Original plan for 5-day courses for 15,000 secondary and 35,000 primary school teachers proved not feasible.)	Trust Territory of the Pacific Islands	
Malaysia (217, 300)	\$1,045,000 UNFPA 1973-1983¹ Training—80,000 middle school teachers, using SLEMs.	Marshall Islands (323)	\$45,000 UNFPA 1981-1982 Seminars for policy-makers, teachers, education officials, and local leaders to promote awareness of population education. Development of prototype curricula and instructional materials and their introduction on a pilot scale. Acquisition of material for libraries of selected schools and the Education Ministry.
Nepal (217, 304)	\$655,000 UNFPA 1980-1983 Training—7,750 lower secondary and secondary school teachers through face-to-face instruction and radio programs.	Micronesia (322)	\$50,000 UNFPA 1981 Seminars for education, church, and community leaders in all 4 states. National seminar for participants in state seminars to share experiences, assess needs, and make recommendations for national plan. Acquisition of materials for libraries of state and national education departments and selected schools.
Philippines (176, 177, 217, 246)	\$1,575,000 UNFPA 1972-1980¹ Training—208,000 primary and 10,000 secondary level teachers by national supervisory training teams. Materials—variety of guides, references, and instructional materials to be distributed to all teachers concerned. Limited distribution of student reference books. (SLEMs and middle-level trainers used because of inadequate progress of training teams. Student materials limited by funds.) \$600,000 (approx.) UNFPA 1982-1983¹ Regionalization project: Training—orientation sessions for 1,000 regional and divisional personnel and school principals; courses for 256 master trainers who will in turn train 2,000 assistant principals and department heads. These will in turn train 10,000 secondary-level teachers. Materials—production and distribution of the following secondary-level materials adapted or specifically developed for use in 13 educational regions: 15,000 teachers' manuals, 1,500 sets of training modules.	Palau (321)	\$30,000 UNFPA 1981-1982 Village surveys of population-related problems. Training—seminars and workshops, using survey results, to integrate population content into existing school subjects.
Solomon Islands (223)	\$44,000 UNFPA 1981-1982 Awareness seminars for national and provincial policy-makers. Development and distribution of curricular materials. Introduction of population education into regular in-service teacher training.	AFRICA & MIDDLE EAST	
Sri Lanka (215, 217, 278)	\$478,000 UNFPA 1973-1985 Training—24,000 teachers. Materials—national sourcebook.	Benin (52, 217, 242)	\$150,000 UNFPA 1976-1980 6 regional seminars and publication of reports of seminar findings.
		Egypt (133, 134, 366)	\$408,000 World Bank (loan) 1980 Training—pre-service training for secondary school teachers. Materials—audiovisual materials for training sessions. Foreign consultants—one long-term, two short-term. (Egyptian government to fund much of teacher training and materials production.) \$45,000 USAID 1977-1981 Workshops for project personnel and teachers.
		Ivory Coast (52, 217)	\$21,000 UNFPA 1977 National seminar to examine problems and needs. \$17,000 UNFPA 1980 National seminar for educators to assess trends in population shown in recent census results. Training—2 overseas graduate fellowships and study tours of Tunisian population education program.
		Morocco (302)	\$454,000 UNFPA 1981-1983 Training—3-day seminars for project personnel, supervisors, and teachers. Equipment—audiovisual equipment, vehicles, and office equipment.
		Nigeria (217, 242)	\$51,000 UNFPA 1981 Evaluation of needs and organizational activities in preparation for national program.

Table 3. continued

Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded	Region, Country & Ref. No.	Amount of External Funding (in \$US), Source, Years, and Activities Funded
Sierra Leone (217, 314)	\$337,00 UNFPA 1977-1982 ¹ Training—1,330 secondary school teachers. Materials—2 secondary school textbooks and one textbook supplement developed. (Distribution limited.)	Colombia (45, 175, 217)	\$224,000 UNFPA 1972-1974 Valle University project Training—key staff and 164 primary and secondary school teachers. (As a result of this project, some population concepts were included during primary and secondary curriculum reform, 1976).
Somalia (91, 92, 215, 217)	\$341,000 UNFPA 1981-1982 Training—2 overseas graduate fellowships; one-semester training courses in Cairo, Egypt, for 20 participants; study tours for 10 teachers. Materials—primary school teaching modules and national sourcebook.		\$34,000 UNFPA 1979 Training—one-week courses for 300 teachers from Bogotá. Materials—teachers' manual developed, 300 copies printed.
Sudan (217, 317)	\$236,000 UNFPA 1980-1983 Training—180 teacher-trainers, 60 primary school supervisors, 60 secondary school supervisors, 60 secondary school teacher training institute supervisors.	Dominican Republic (214, 217, 291, 364)	\$177,000 UNFPA 1979-1982 Training—1,226 trainers. Materials—6,000 first-grade units, 4,000 second-grade units, 3,000 third-grade units, 10,000 teachers' guides printed and distributed in 1980-1981.
Tunisia (215, 217, 246)	\$738,000 UNFPA 1974-1982 Training—1,500 secondary school teachers and principals. Materials—6 teachers' manuals.	El Salvador (213, 217, 246)	\$410,000 UNFPA 1971-1980 Curriculum revision and several seminars for teachers.
Upper Volta (52, 217, 218, 242)	\$59,000 UNFPA 1976 Training—seminar on population and sex education for national officials in education, health, information, rural development, and economic planning. (Subsequent activities primarily in sex education.)	Nicaragua (306)	\$309,000 UNFPA 1981-1983 Training—in-service training for 55 middle-level trainers, 400 primary-level teachers, 100 secondary-level teachers, 150 teacher training school instructors.
Yemen, People's Democratic Yemen, People's Democratic Rep. of (173, 174, 217)	\$281,000 UNFPA 1979-1981 Training—pre- and in-service training for 290 primary and secondary school teachers each year. Materials—partial subsidy for printing 120,000 primary and 20,000 secondary school textbooks. Equipment—audiovisual and office equipment, one vehicle.	Paraguay (170, 217)	\$417,000 UNFPA 1980-1983 Training—13,000 primary and 2,000 secondary school teachers to be trained by national supervisory training teams. Materials—population education kits for all teachers trained.
LATIN AMERICA & CARIBBEAN		Note: For more information on some of these programs, see Table 1, pp. M-205-206 and Table 2, p. M-232-235.	
Chile (38)	\$428,000 UNFPA (Funds requested and approved, 1979) (Planning ended in 1979 as a result of strong pro-natalist position taken by government; no funds spent.)	UNFPA = United Nations Fund for Population Activities SLEM = Self-Learning Educational Module USAID = United States Agency for International Development	

Note: For more information on some of these programs, see Table 1, pp. M-205-206 and Table 2, p. M-232-235.

UNFPA = United Nations Fund for Population Activities
SLEM = Self-Learning Educational Module
USAID = United States Agency for International Development

¹In addition to UNFPA funding, project or activity has received assistance through a population education component of a larger population or education project of the World Bank (134). Specific information not available.

²World Bank loans generally are fully disbursed within five years of project agreement. Indonesia has received funding under three consecutive population projects (134).

³A master teacher is a teacher from a particular school responsible for training all teachers in that school (i.e., a peer trainer) or a teacher of a particular subject responsible for training all the teachers of that subject in the district or region.

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